THE AMERICAN GAS LIGHT JOURNAL

PUBLISHED WEEKLY, AT NO. 42 PINE STREET.

VOLUME XCVI., No. 9.
Whole No. 1,916.

NEW YORK, MONDAY, FEBRUARY 26, 1912.

Subscription, $3 Per Year.
$4 Canada, $5 Foreign.

INDEX TO CONTENTS, PAGE 131. - - - - - - - - ADVERTISERS' INDEX, PAGE 22.

Riter-Conley Manufacturing Company

STEEL CONSTRUCTION

Pittsburgh

LIBRARY OF CONGRESS
FEB 26 1912
SMITHSONIAN DEPOSIT

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.

PRODUCING { UNIFORM RESULTS. HIGHEST EFFICIENCIES.

THE AMERICAN
GAS LIGHT JOURNAL

VOL. XCVI., No. 9. NEW YORK, FEBRUARY 26, 1912. WHOLE NO. 1,916.

CONTENTS.

An Asterisk (*) Denotes an Illustrated Article.

Some Notes on Cooking by Gas and Electricity, by Mr. A. H. Strecker. 131
*A Service Cart and Some "Dont's," by "Mat.". 133
Proceedings, Sixth Annual Meeting, American Gas Institute—Continued from Page 119. 134
First Day, Afternoon Session—Part II.—Discussing the von Maur Paper.
Proceedings, Fourth Annual Meeting, Indiana Gas Association—Continued from Page 128. 137
Second Day, Morning Session—Thanking the Lily Company—Discussing the Kaufman Paper.
OFFICIAL NOTICES—
Annual Meeting, Illinois Gas Association 138
Fourth Meeting of the Pennsylvania Gas Association 138
Fourth Meeting, Southern Gas Association 138
Annual Meeting, Wisconsin Gas Association 138
EDITORIALS—
Briefly Told 139
Obituary Note, Mr. Eugene H. Yorke—February Meeting, Society of Gas Lighting—February Meeting, I. E. S. c. Philadelphia Section—Current Mention.
Recent Patent Issues 144
ITEMS OF INTEREST FROM VARIOUS LOCALITIES 144
Death of Mr. A. E. Barling—Mr. Little Selling Some—Mr. R. B. Clark Goes to Paducah, Ky.—Mr. J. T. Moran Succeeds the Late Prof. Brush—Vice-President Abbott and Mr. Stacey—Annual Meeting, New Haven, Conn.—Death of Mr. T. W. Hanley—The Hill-Kenton Company—Mrs. Dobbins' Bonds are Good—Death of Mr. A. W. Ballard—Municipal Plant for Roseville, Cal.—Executive Management, Washington (D. C.) Company—Resignation of Commissioner Guthard—Combination at Lambertville, N. J.—Annual Meeting, Salem, Mass.—To Build an Office Structure—The Rat was Killed—And Other Items.
The Market for Gas Securities 146
Meeting Times of the Various Gas Associations 146
Public Lighting Table for March, 1912 (Advertising Section) 27

Some Notes on Cooking by Gas and Electricity.

[Read by MR. A. H. STRECKER, Newark, N. J., at the January Meeting, Society of Gas Lighting.]

During all these years, while the contest between gas and the electric current has been going on, and while the field of lighting has been largely invaded by electricity, by almost common consent that of heating has been left to gas undisputed. Only of late efforts have been made, both in this country and in England, and on the Continent as well, to demonstrate the availability and even superiority of electricity as a heating or, more particularly, as a cooking agent. Rather extravagant claims have been made in this direction at meetings of electrical bodies, as well as in the public press, which claims have in turn been met by the advocates of gas by rather convincing statements.

The Engineering Correspondent of the London *Daily Telegraph* recently published in that paper an article in which he practically consigned lighting, etc., by gas to the scrap heap. The *Journal of Gas Lighting* felt that it would never do to let such a statement go unchallenged and, therefore, opened its columns to the aforesaid Engineering Correspondent as well as to all members of the gas fraternity willing to break a lance in defense of their territory. The correspondent has, under certain conditions, accepted the offer and has since in the *Journal* published some further explanatory statements, which, while rather weak and general, have brought out numerous replies by gas men. While nothing particularly new has come out, some of the information collected and stated is quite interesting. One anonymous correspondent, after giving various results concerning gas and electric lighting, proceeds to quote others relating to respective cost of the 2 agents for power, cooking and heating. As to power, he takes 746 watts per electric horse power, and 17 cubic feet of gas of the quality of 560 B.T.U. The rates assumed as to price of the two commodities are rather lower than those commonly quoted on this side. Assuming these in more common use here, and also substituting 20 for 17 cubic feet of gas per horse power hour, which is probably more correct, especially in the case of smaller engines, running at uneven loads, we have the following table of cost of 1 horse power hour:

Cost per Kw. for Electrical Current, Cent.	Cost per Indicated H. P. Hour, Cents	Equivalent Cost of B. H. P. Hour Allowing 15 Per Cent. for Conversion, Cents.	Cost of Gas per 1,000 Cu. Ft., Cents.	Cost of Gas per Indicated H. P. Hour, Cents.	Equivalent Cost of Gas per B. H. P. Hour Allowing 10 Per Cent off for Indicated, Cents.
3.....	2.24	2.64	60	1.20	1.33
4.....	2.98	3.51	70	1.40	1.55
5.....	3.73	4.39	80	1.60	1.77
6.....	4.47	5.27	90	1.80	2.00
7.....	5.22	6.14	100	2.00	2.22
8.....	5.97	7.02	110	2.20	2.44
9.....	6.71	7.90	120	2.40	2 66
10.....	7.46	8.77	130	2.60	2.88
11.....	8.20	9.65	140	2.80	3 11
12.....	8.95	10.53	150	3.00	3.33

As to the heating value of the electric current:

1,980,000-foot pounds per hour = 1-horse power hour = 746-watt hours.

$$1 \text{ kilowatt-hour} = \frac{1,980,000 \times 1,000}{746} = 2,654,200\text{-foot pounds.}$$

772 foot pounds = 1 B.T.U. (Joule's mechanical equivalent of heat).

$$\text{Thus 1 kilowatt-hour} = \frac{2,654,200}{772} = 3,438 \text{ B.T.U.}$$

If 1 cubic foot of gas gives 560 B.T.U. we need, in order to get the same heating effect as from the kilowatt-hour of electricity: $\frac{3,438}{560}$ = 6.14 cubic feet of gas. For dollar-gas and current at 10 cents per kilowatt-hour the relative cost for same amount of heat would be as 0.614 to 10.

In No. 47 of the *Journal für Gasbeleuchtung* we find a lengthy article by Mr. F. Meurer giving the results of a series of practical experiments in gas and electric cooking. These experiments were made with a view of obtaining results practical and correct by both methods, and were carried on at the same time and under the same circumstances and conditions. Various seemingly extravagant statements had been made as to the economy of electric cooking, particularly at this year's meeting of the German electrical engineers, and on the occasion of the opening of the exhibition of electric cooking appliances held at Oranienburg, in which suburb of Berlin the rate for current has been cut to 8 pfennig (2 cents) per kilowatt hour to inaugurate its general use in this direction. Per contra, figures differing widely from those had been quoted by gas men, but all data

referred to on both sides of the controversy were based on observations made at different places, at different times and under different conditions.

A comparison of cost of operating various appliances is given, which runs as follows, when based again upon dollar-gas and 10 cents per kilowatt-hour current:

Electricity.	Gas.
6-*Pint Copper Kettle.*—Takes 1,300 watts per hour. Raises water from 58° to 215° in 17 minutes. Cost to boil the 6 pints, 3.68 cents.	*Ordinary Iron Kettle, Containing 6 Pints.*—On gas ring burner, boils in 21 minutes, raising water from 58° to 212° F. Gas used, 3.5 cubic feet. Cost of gas, 0.35 cent.
Light Laundry Iron.—Weight 5 pounds, takes 350 watts per hour. Cost per hour, 3.5 cents.	*Gas Iron, 7¾ Pounds.*—Takes 5 cubic feet per hour at working heat. Cost of gas, 0.5 cent pr. hr.
Electric Radiator.—Each large glow lamp takes 250 watts, and 1 radiator with 4 lamps, 1,000 watts per hour, costing 10 cents; keeps room 12 feet square moderately warm.	5-*Tube Kern Gas Radiator.*—Full on takes 17½ cubic feet per honr, costing 1.75 cents. Half on, takes 10 feet, costing 1 cent. Turned low 8 feet, costing 0.8 cent. Keeps room 12 feet square moderately warm, when half on.
Small Hot Plate.—Four inches by 4 inches, weight 8 pounds. Takes 180 watts and costs 1.8 cents per hour.	*Small Simmering Burner, Used for Kettle.*—Takes 5 cubic feet, costing 0.5 cent per hour.

One of the principal points made by the electricians was the alleged wastefulness of gas cooking, exemplified, as claimed, by the fact that fully 33 per cent. of the full rated capacity of the gas burner was required to maintain boiling temperature of a pot of water. They seemingly denied the possibility of regulating the flow of gas and apparently were ignorant of, or disregarded the existence of, double ring and simmering burners constructed for this purpose. They would allow but 25 per cent. for the practical efficiency of the gas cooker, while claiming 88 per cent. for their own appliances in ordinary use, with 95 per cent. laboratory efficiency.

The determination of these various efficiencies was one of the objects of these experiments. The plan followed was, in order to eliminate any difference in conditions which might influence results, to do all the competitive cooking in the same room, as far as possible, during the same time, and to use the same materials. The cooking itself was done by a female cooking teacher, who had previously been fully instructed regarding the handling of the electric apparatus. She was, however, not obliged to make any notes or take any readings, so as not to distract her attention from the cooking proper. All that part of the work was taken care of by a technical assistant. Many different dishes were cooked, taking in all of the principal kinds of food stuffs. The gas range used was the best obtainable, with 4 double ring burners, each working within 12.5 and 1 cubic foot (maximum and minimum) hourly consumption. The oven was of the usual construction, with baking oven above and sub-flame roasting com partment below.

Of the electrical appliances used there were self-contained pots, with either the bottom or the sides heated by resistance coils, pro tected on the outside by layers of insulating material. Then there were hot plates (round or square), heated by some built-in resistance and used for heating ordinary pots. To obtain a more intense heat there were so-called "Silund" hot plates, their bodies consisting of grates made up of silicium carbide bars, which become bright red during passage of current and act by reflected heat. All lower sur faces are carefully insulated. The ovens were in form like those of gas ranges, and have heating coils both in top and bottom.

The instruments used for measuring volume, tension, etc., of current had been specially tested at the Electro-Technical Institute, Dresden. The current was taken from 1 wire of a 3-phase system and the voltage was kept constant. The gas pressure was also kept constant and the dry meter used had also been through a special test. During the progress of the trials frequent calorimetric readings were taken and their average used for calculations.

During cookings, and in order to give electricity the best possible chance, the electric hot plates were dispeused with and use made only of the self-contained pots, the roasting pan, oven, and occasionally the "Silund" plate. Two of the pots had a regulation of 3, the other two of 4 steps. To obtain boiling they used full, for continued cooking only the weakest volume of current. The greater heat absorbing capacity of the self contained pots was made use of, permitting continued cooking for a period with current shut off. Cooking by gas was likewise carried on without any unnecessary waste, by reduction of flames, or by the use of the simmering buruer, when the proper stage had been reached. The fact that the various dishes were equally well cooked by either method was established on the spot by tasting, and further on attested by the audience who consumed the products of the trials. As a first step, tests were made of the various appliances by boiling water with them and the following results were obtained:

Self-contained electric pot of 22 cm. (8¾ inches) diameter, filled with 2 5 liters (2.64 quarts) of water. Efficiency was found to be 80.1 per cent., which is from 10 to 15 per cent. less that what is usually claimed for such pots. This higher efficiency can only be approached when the boiling is continued over a long period; much beyond that of ordinary cooking. A parallel trial with gas, using an aluminum pot of the same diameter, and filled with same quantity of water, showed an efficiency of 63.1 per cent. Shutting off the current and the gas supply allowed the liquid to cool in one hour, in the electric pot, to 170° F. and the gas pot to 157° F., showing the greater heat conserving quality of the former.

Another such pot made by another firm 24 cm. (9½ inches) diameter, holding 3 liters (3.17 quarts) of water, showed, during the time of ordinary full speed cooking, 80 per cent. efficiency, rising to 92.2 per cent. when trial was extended over a long period. The parallel trial with a gas heated pot of the same diameter and fill gave an efficiency of 66.1 per cent.

The above mentioned "Silund" hot plate assumed final, bright-red color in 5 to 6 minutes. Heating water in an aluminum pot placed upon it, starting with plate cold, showed 42.5 per cent. and starting when it was already hot 56.4 per cent. efficiency.

Round, "Simplex" hot plate, 10 inches diameter, heating 3.17 quarts of water in an aluminum pot 9½ inches diameter, gave 57.8 per cent., a parallel trial with gas 63.8 per cent. of efficiency. Rectangular hot plate, 12 inches by 16 inches, heating 2 pots, each 8¾ inches diameter and holding 3.17 quarts of water, showed only 51.2 per cent. of efficiency, which is easily explained by the fact of the heating sur face of the plate being only partly covered.

The results obtained with gas are unquestionably higher than those gotten in every day practice in the kitchen, principally for the reason that, for the size of the pot used, the burners were much smaller than those ordinarily employed. Fifty-five per cent. is thought to be about the efficiency of the everyday cooking burner, and when this figure is used in connection with 80 per cent. as that of the self-contained electric pot, we have the relative efficiency of gas as 55:80 = 0.7, or 70 per cent. of that of electricity.

The results of preparing many different dishes in a strictly parallel way by using gas and electricity were carefully noted. From these results, and when omitting trials with the electric hot plates and ovens, it also appears that this average relative efficiency is 70 per cent. Selecting from this list dishes that would form:

I. A workingman's dinner consisting of 1 dish only, 2 to 3 pounds weight.

II. A middle-class, household dinner, consisting of soup, 1 course of meat, 1 or 2 vegetables and stewed fruit for three persons.

III. A higher class household dinner, consisting of soup, 2 kinds of meat, vegetables, stewed fruit and desert for 6 persons.

It was found that the cost of preparing them was:

	With Gas, Cents.	With Electricity, Cents.
Class No. I	0.45	5.23
Class No. II	1.10	11.39
Class No. III	3.56	39.92

gas and electric current being figured as before at $1 per 1,000 cubic feet and 10 cents per kilowatt-hour.

It was found during these trials that, in cooking with gas, 43 per cent. of the total consumption was used to bring the contents of the pots to the boiling point, and the balance of 57 per cent. for slow cooking or simmering. Nearly identical figures were obtained for electricity.

The report goes to some extent into the annual consumption of gas for cooking per member of family, and states this figure to run from 5,120 to 12,340 cubic feet, principally based upon the readings of meters of a number of gas plants set for gas used as fuel. This includes, of course, gas used for heating of the water, and of heating stoves, for ironing, and even for kitchen lights. Nevertheless, some electricians have made in their calculations use of the larger figure as indicating gas actually used for cooking only.

An actual example gives 81 cubic feet of gas used daily in the kitchen of a household of 8 persons, of which 42 cubic feet were used

for cooking proper, and 39 cubic feet for heating water on the range burners. The consumption of gas for the latter purpose could have been lessened considerably by employing a regular water heater of about 90 per cent. efficiency, instead of doing the work on an open burner of about 55 per cent.

From the trial runs of the electrical appliances it can readily be seen that only the self-contained or directly heated pots offer any reason for consideration. Their efficiency is high, their use is undoubtedly convenient, and cooking by them can be done a little more quickly than by gas. But, then, they have the drawback of having to be disconnected after use and of reconnecting after scouring. It is to be feared that this work, especially in the hands of ordinary servants, will make their useful life a short one. For this reason, Mr. Price, lecturing recently before the Dublin Section of the Institution of Electrical Engineers, condemns them altogether and seems to be inclined to think that the future of electric cooking rests with the hot plate perfected beyond what is now in the market.

The same gentleman estimates the cost of electrical cooking of breakfast, dinner and tea for a family of 6 people at 6d. (12 cents) per day, with current at 1d. (2 cents) per kilowatt-hour. At our rate of 10 cents for this unit the cost would amount to 60 cents. He would not attempt at all to heat the necessary household water by electricity, but would employ a coke fired boiler for that, costing another 4 cents per day for fuel. Thus the daily total cost of cooking, etc., for this family of six would be 64 cents, against the example of a German household of 8 cooking by gas for 8.1 cents.

According to the German trials the electric oven is pretty well out of the race. It takes fully 30 minutes to get hot enough for work, changes its temperature only very slowly when current is reduced (owing to the great heat absorbing capacity of the plates) and the thermal efficiency is hardly greater than that of the gas oven.

Particularly in this country efforts have been made to introduce electrical cooking closets, that is boxes with well insulated walls and pots arranged in steps. Only the lowermost pot is electrically heated, the others receiving indirect heat from its surplus. In some arrangements the pots fit into one another, the bottom and largest is the only one heated, while the others receive heat from the steam arising from the first. T his style of cooking could of course also be applied to gas-heated pots, and, furthermore, it is something by no means new. I can remember having seen such nests of pots many years ago, when neither gas nor electric cooking was even thought of. But the method has for various reasons never become popular with housewives. And it is of course applicable to straight cooking only, all roasting, frying, baking, etc., having to be done separately. The saving derived from it over that of cooking on an open gas range with proper simmer, etc., burners would not be over 10–15 per cent., and the length of time it takes would fully counterbalance the saving.

On the basis of accounts, published some little time ago in the *Electrical World*, regarding the warming closet put out by the Hartford Electric Light Company, it would appear that cooking in it a meal for 5 people would take about 1,984 B.T.U., or 0.577 kilowatt-hour, costing (at 10 cents per unit) 5.77 cents, or that another such apparatus built by the Electric Fireless Cookstove Company, of Buchanan, Mich., will do the same work at an expenditure of 4,087 B.T.U., or 1.189 kilowatt-hour, or 11.89 cents, which is about the same as the cost of a dinner of the same character prepared in the German cooking trials on an open electric range.

A recent writer in a foreign electrical journal makes the successful introduction of electrical cooking dependent on 3 things, to wit: Low rates for current, improvement of appliances, and cheapening the first cost thereof. As to the first item he seems to favor as the only practical way the selling of cooking current (presumably over a special wire system) during the light load hours only. The cooking would have to be done slowly, extending perhaps over 6 or 8 hours, using a small volume of current, 50 to 100 watts per hour. This would exclude roasting, etc., since appliances therefor take considerably more current. It seems hardly likely that such a style of cooking will ever become very popular.

From all that has been quoted above it may be said that so far there is small cause for fear that electricity will supplant gas in the cooking and heating field to any great extent. Of course, there will be people who will use it regardless of expense. Under ordinary circumstances, and with freedom for the consumer of using current when and to what amount he chooses, electric cooking will be ten times as expensive as that by gas.

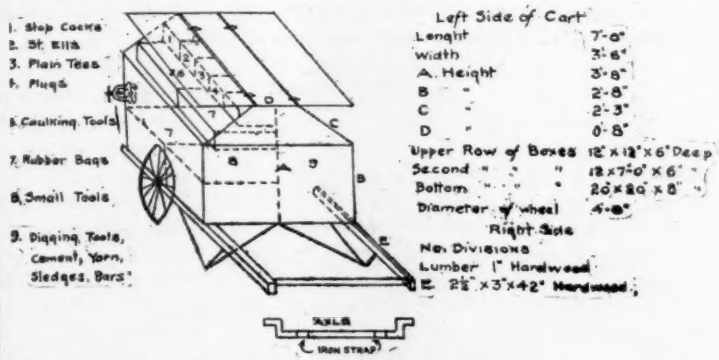
As to gas it must be remembered that the results given in Mr. Meurer's account will hardly be produced in the ordinary kitchen, especially when run by the ordinary servant, who does not care much about economy. The same would apply to an electric outfit. Much of the good results in the German trials seems to be due to the fact that the pots used were rather large in proportion to the size of the burners, which consumed only a maximum of 12½ cubic feet per hour. In the case of ranges in common use here, the large burners take about 24, the smaller ones 16, simmer burners 1½ to 3, oven burners about 30 and the whole range from 80 to 85 cubic feet per hour, under 20-tenths pressure. If a comparatively small pot is placed over one of the large burners, the flame is likely to curl up on the sides and the efficiency will certainly fall. It would be well for gas companies and stove manufacturers to determine the proper size and shape of pot to go with each size burner and perhaps sell such pots with the ranges. It is not likely that the present day gas range is the acme of perfection, and it might be improved in various ways. Thus far the efforts of manufacturers have been largely directed in the way of producing as much as possible for the least money. In order to introduce the ranges they had to be low priced. But they are introduced now, have become fixtures in most houses, and through competition we will be compelled to make them as efficient and economical as possible.

It would also seem advisable for gas companies to collect data showing the amount of gas used for cooking, heating, etc., per member of families of the various classes forming our communities. Such statistics, when collected and assembled, will be very valuable material when we will have to defend our position.

A Service Cart and Some "Don'ts."

[Prepared by "MAT."]

The illustration and its notations are sufficient to enable any mechanic to construct in any company's shop and at small cost, a service cart that will be better than any that could be purchased out of any warehouse lot.



These specified "Don'ts" are for the consideration of the distribution department, and the compiler imagines that later they will be off-handedly useful, considering the nature of the winter through which the country is passing.

SERVICES—

Don't fail to inform consumer, upon reaching the place where a service is to be run or renewed, that you are about to do the work.

Don't fail to use care in taking up sod and replacing same.

Don't argue with a consumer if he objects to your doing the work; telephone the office for instructions.

Don't make promises to consumers.

Don't use profane language on the work.

Don't break cement sidewalks, if possible to run service under it by drilling.

Don't use fire to test joints. Use soap and water, *always*.

Don't fill in around pipe with ashes.

Don't use brick for blocking; brick will absorb moistvre and so cause corrosion.

Don't fail to tamp all back-fill every 8 inches.

Don't enter house unless you have permit and key.

Don't try to work with worn out tools.

Don't borrow tools for anyone.

Don't fail to keep your tools clean.

Don't loan tools to anyone.

Don't fail to make sketch showing location of service from the nearest corner.

Don't fail to test all joints.

Don't tap a 4-inch main larger than 1 inch.
" " 6-inch " " " 1¼ inches.
" " 10-inch " " " 2 "
" " 12-inch " " " 2½ "
" " 16-inch " " " 3 "

Don't pile bricks or dirt around fire hydrants. *Always* leave a space at least 10 feet square open.

Don't block gutters, or gutter inlets.

Don't block streets or driveways.

Don't take any risks. Use ample shoring where needed to prevent cavein.

MAINS—

Don't tunnel—unless absolutely necessary.

Don't fail to remove all dirt from pipe before laying.

Don't fail to test all pipe with a hammer before laying.

Don't cover joints without testing. Use soap and water.

Don't make cement joints until you are sure the pipe rests upon a firm foundation, and until at least 3 pipes have been laid ahead, and have been made firm by ramming dirt around both sides, just back of the bells.

Don't fail to make note of depth of main, and location from the property line, before the ditch is filled.

Don't leave an open ditch without a guard. Red lamp all open ditch, tool boxes and material at night.

Don't open any street, public or private, without first obtaining a written permit.

Don't fail to turn in permit to office after completing work.

Don't use intoxicants of any kind during working hours.

Don't fail to advise the office at once of any accident or injury to person or property that may occur upon your work.

DRIP RECORD.

Nearest House No. 307 Main St

Date 7-18-11

Location of Drip Pot 16 Ft. 6 Ins. 8 of N.P Line of Main St
81 ft. 0 Ins. W of W.P. Line of W. Broadway

Location of Drip Riser 11 Ft. 0 Ins. 8 of N.P Line of Main St
81 ft. 0 Ins. W of W.P. Line of W. Broadway

Size of Main 6" Depth to top 2 Ft. 9 Ins.

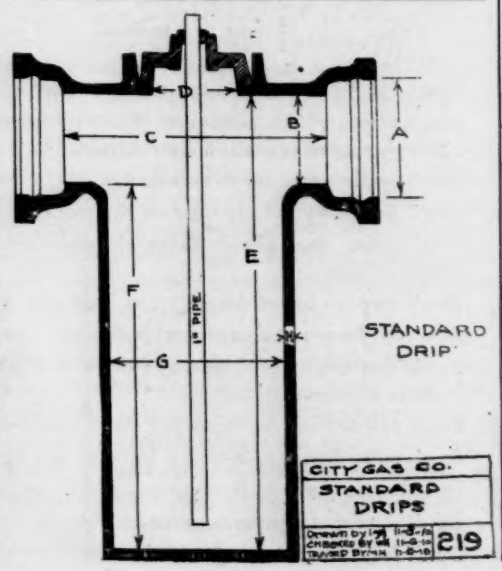
Location of Main 16 Ft. 6 Ins 8 N.P Line of Main St

Style of Drip Pot New Yes

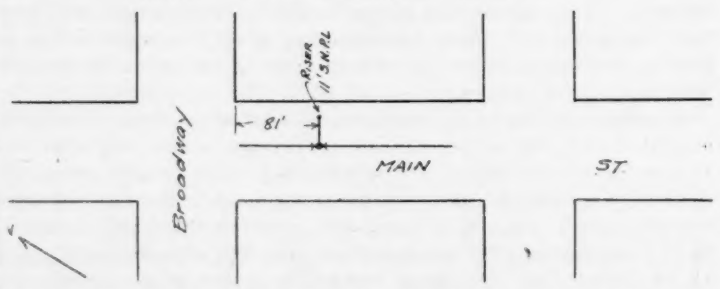
Capacity 13 gallons Signed J. D. Bowen

(OVER)

CAP.	WEIGHT	SIZE	A	B	C	D	E	F	G	H
52	20	3	4"	5 5/16	4	18	6	30 3/4	26 3/4	12	5/8
46	1/2		6"	7 3/4	6	18 1/4	6	30 3/4	24 3/4	12	5/8
104	1/2		8"	9 3/16	8	22 1/2	6	38	30	16	5/8
97	1/2		10"	11 7/8	10	22 1/2	6	38	28	16	5/8
195	1/2		12"	14	12	27 3/4	6	48	36	20	1 1/16
174			16"	18 1/4	16	26 1/2	6	48	32	20	1 1/16
152			20"	22 1/4	20	28 3/4	6	48	28	20	1 1/16
373			24"	26 3/4	24	40	6	54	30	30	3/4



SKETCH SHOWING LOCATION OF DRIP



Don't fail to get names of persons injured or property damaged; also, names of witnesses.

Don't fail to get all information possible and make written report and send to office.

Don't smoke on the work.

DRIP RECORD CARD—

A drip record card should be made out for every new drip laid. This card (cuts 2, 3, 4) should be made up to locate the riser, the main and the drip proper, from the nearest house number, the property line and the nearest corner. It should also show the size of the drip with its capacity. Any other general remarks that may be deemed helpful in the location of the drip, riser or main may be noted upon the card. All cards should be filled in in ink and turned in to the superintendent of distribution.

[CONTINUED FROM PAGE 119.]

PROCEEDINGS, SIXTH ANNUAL MEETING, AMERICAN GAS INSTITUTE.

HELD IN ST. LOUIS, MO., OCTOBER 18 TO 20, 1911.

FIRST DAY—AFTERNOON SESSION.—PART II.

Discussing the Von Maur Paper.

The Chairman announced that Mr. von Maur's paper was open to discussion.

Mr. G. T. Macbeth said, among other things, Mr. von Maur said or thought there was nothing in the usual way of figuring unaccounted-for gas on percentage basis, but he had not told them what the St. Louis unaccounted for was. In another paragraph he says, "French engineers consider approximately 85,230 cubic feet per mile of main good practice." And the speaker wished he could get his leakage to that point. Working on theirs for the past 2 or 3 years. the figures per mile for 1909 were 169,674 cubic feet, of 3-inch per year. The first 9 months of 1911, they were 156,748, and they thought they were making progress. Again, Mr. von Maur states, "Having made all possible corrections as to temperature, moisture, pressure, etc.," and the speaker would like to ask what system was used in correcting for moisture? He did not know whether Mr. von Maur had any wrought mains or not. If he had, it would look right to include "Leakage at Screw Joints." Under Class A, page 10. He thought "Actual gas taken to fill new mains laid," should have been added. Perhaps, though that was included in the amount lost at time of making main connection. He supposed they were only using cocks on services in St. Louis, yet the paper refers somewhere to a leakage of valves. The same thing applied in Class B, page 10, on the service pipe question as in Class A. The actual amount of gas taken to fill the new services laid should be listed. Another class that might be added, is where he mentions a broken service sleeve. Still he neglected to show any class for leak caused by broken service sleeves, wherefore the speaker asked whether he had trouble with the above sleeves? They had some trouble through the working of a cast iron sleeve, causing unnecessary strain on sleeve when put on main. A dozen or so were set in the district before it was discovered. Once fixed, though, they had no subsequent trouble. In the overhauling of mains, how long did Mr. von Maur figure they will last and when would he undertake to overhaul them again. Whether this overhauling work should last from 3, 5, 10 or 15 years? He recommended nothing less than 6-inch mains in city streets, in which the speaker agreed, but the author shows a number of leaks scheduled as from "Broken mains, new work." This included some 3 and 4-inch mains laid under "New work." As to high pressure. When he spoke of

high pressure, about 20 pounds pressure was implied. Speaking of belt line pressure, they usually said either transforming or pumping main pressure. He would like to find out exactly what pressure was meant, or how many pounds were referred to. As to a 6-inch main broken by sewer. He did not know whether they had much rock in St. Louis, and he would ask whether mains were put through or around the sewer manholes. Also, whether they had any trouble with street service boxes wearing through on the pipe outside of the service cock, due to the constant pounding on the top of the box and the wearing of the bottom edge of the box on the service pipe itself. He had heard of this trouble outside of his territory, but he believed that district was now using a box with flanged edge where same crosses over pipe. The Dresser W. I. coupling was also referred to, but it was not made clear whether it was merely a Dresser coupling designed for wrought iron pipe, or a Dresser coupling made out of cast iron or from wrought iron material. They had had some trouble, not with deterioration of the service pipe itself, but from electricity getting into the cellar. Would the insulating of pipe with pitch prevent this trouble as well as the corrosion? Also, did Mr. von Maur try filling out his old lead joints with lead wool after they were hammered back? It worked satisfactorily if one could drive the joint far enough back. Mr. von Maur spoke frequently about electrolysis, and he would ask whether any survey had been made in St. Louis, and if so, the volts and amperes found on the pipe. The list of broken mains reported in Westchester county, since January 1, 1910, to March 1, 1910, shows 25 main breaks, 6-inch being largest main. The cost of repairing all these breaks averaged $41.94 each. They had done some leakage work in the last 3 years. In 1909 they stopped an actual leakage of 1,506,211 cubic feet on an expenditure of $1,014.78, or 3.46 per leak actually found. In 1910 more money was spent for this work, although less leakage was stopped, so the results were not as good. They spent $2,260.70 to save 1,319,665 cubic feet, caused by 444 leaks.

Mr. Griswold (Denver) said Mr. von Maur at one point in the paper mentioned the fact that the increase of business in the last half of December was unaccounted-for, and the speaker thought to that he should have added that the increase of business for the entire period over which they were figuring leakage would appear as unaccounted-for during half that period. In other words, the entire increase of business each month for half that month would appear in the total unaccounted-for during the year. In most companies that was a small item. Mr. von Maur pointed out that service leakage is several times more than from the main to which the services led. He also called attention to the unaccounted-for appearing by reason of inaccuracy of consumers' meters. It seemed to the speaker that possibly a better way to report unaccounted-for would be per service rather than per mile of main upon any basis, for that would cover the bulk of the actual leakage, and would also be proportionate to the unaccounted-for arising by reason of the inaccuracy of meters.

Mr. Walton Forstall said—There are one or two points that I would like to emphasize in Mr. von Maur's paper. I agree with him that I would like to see nothing but 6-inch instead of 3 or 4-inch pipes. In Philadelphia we have mostly 6-inch, but I have never been able to prove that it would pay to replace all our 3 and 4-inch because of their greater liability to leakage. I have prepared a table which shows for 1910 the number of breaks or leaks for different sizes of main per mile, and while, of course, the 3 and 4-inch break more in proportion than the 6 inch, the increased breakage would, as said before, never warrant a replacement of all these mains with 6-inch. In Philadelphia, shortly after we took control, many miles of streets were changed from cobble to asphalt paving. Prior to this change we replaced any 3-inch main with 6-inch, and all 4 inch mains were so replaced that were considered badly located. In this way we were able to reduce our 2-inch mileage from 40 to 16, the 3-inch from 323 to 155, and the 4 inch from 539 to 493; while the 6-inch increased from 91 to 481. As a striking example of the difference between the 3-inch and 6-inch, as to leaks. In one of our districts this summer, where we have 260 miles of mains and about 60,000 meters, the only leaks we had in 1 month were 2, on old services, and 1 on new, and no main leaks, while in another district, with a lot of 3-inch and 2-inch mains, we had in one winter month 55 broken mains. A slight difference! We have had a good deal of trouble in Philadelphia with one or two pumping mains (laid in 1898), at the time when we were practically working under the old Bureau of Gas conditions, and I thought it might be of interest to tell what we did to stop these leaks. After many of the joints had been recaulked twice within several years, we decided (1905) to use leak clamps. Since then we have put on 112 thirty, 144 twenty-four and 309 twenty-inch, pretty evenly divided in point of time throughout the last 6 years. Only one of these has been found leaking, probably due to the rubber being improperly placed at the time of installation. Of course, we may have trouble at any time. It was a question with us whether or not any leaking gas could reach the rubber of the clamp in sufficient volume to give enough deterioration to produce leakage. So far we seem to have been successful. In one place, Mr. von Maur shows a pipe eaten away where the threads are exposed. He solves the difficulty of exposed threads by screwing his pipe into the cock or fitting far enough to cover all the threads. Our solution in Philadelphia has been the use of a recessed fitting, of which I show some samples. You will note that the recess is simply a prolongation with an enlarged diameter of the fitting. In this way, while only full threads are engaged, any male threads not engaging with the female threads are contained within the recess. We fill the space between the recess and the outside of the male thread with our coating, and in this way thoroughly protect the exposed threads. These recessed fittings cost a little more than the ordinary kind, but we decided that without them the weakest point of our service would be at our exposed threads, and that here a hole might be eaten through much faster than at any other point. Mr. von Maur speaks about the cost of coating the service pipe. In Philadelphia we have about 400,000 feet of 1¼ inch pipe a year to coat, and find it costs $\frac{2}{10}$ cent for material and $\frac{1}{10}$ cent for cleaning, inspecting and coating, so the cost is negligible. He speaks about objection to laying the service through solid structure, such as conduits, sewers, manholes, etc. Where a conduit company finds it necessary to inclose our main within a manhole, they have usually been willing to pay all of the expense we were thus put to. Usually we laid the main around the manhole, but, in some cases, where this was not possible, we enlarged the main in the manhole, making it at least 6 inch in size. We have received over $15,000 from one company for the cost of taking mains out of manholes. Mr. von Maur says every main should be laid on solid, undisturbed ground. We don't believe that. We don't believe that, in city conditions, you can get as good a foundation for mains on solid, undisturbed ground as on blocks, and our record with mains, with cement joints, laid on blocking, shows that all the mains, except possibly a few of the 20, and some of the 30, have remained tight for years, so we are satisfied to stick to blocking. If we had working for us a very good farmer who had laid miles of drains for years, and who could make the nicest kind of ditch, then we might be willing to try laying on the ground, but as it is, we prefer to use blocking. I believe Mr. von Maur, where he does use blocking, tries to have his pipe rest on both blocking and ground. We never could be sure that the pipe was resting on both the blocking and the ground, and that the danger we ran of having the pipe only rest on the ground would not warrant our adopting his practice. We are always careful to block our services, so that no strain brought on a service can be transmitted to the main. I agree very heartily with Mr. von Maur on the question of laying mains in such a way that you don't have to cross under tracks with services. Philadelphia houses are so close together that it is usually most economical to lay two mains on each street having a car track. Now, as to the much discussed question of wrought iron *vs.* steel pipe, We put underground (1905) a number of specimens of both wrought iron and steel coated with various materials. We uncovered them several months ago, and the steel pipe, coated with the Hickenlooper mixture, was apparently in better condition than the wrought iron which had been treated same way. In general, we find the Hickenlooper mixture stood better than any other coating practicable for us to use, for the only coatings which were in better condition than the Hickenlooper mixture, were all coatings of so brittle a nature that they would crack from the pipe under working conditions before the service could be laid, or else require a higher temperature for their application than we consider practical under our conditions.

Mr. Hellen said he was very much interested in Mr. von Maur's paper, particularly over the question of leakage of gas on a percentage basis. The great trouble with people was, as Mr. von Maur claimed, they reduced the percentage of gas by increased sales, and didn't reduce the actual leakage at all. He believed the great trouble with gas unaccounted-for lies with the superintendent of manufacture. The great trouble with the superintendent of manufacture was that he had no interest in the distribution department, and in such cases one always found that his gas unaccounted-for was large. In Rochester, the superintendent of manufacture took the same interest in gas unaccounted-for that he did, with the result that their leakage

was very low. The actual gas leakage for 1910 was less than in 1909, and no greater than in 1908. The average leakage for the 3 years, figured on a 3-inch main basis, amounted to 66,000 feet per mile of main, which he believed was low, figuring out as it did on a percentage of about 3½. He believed the one real reason for actual gas leakage was due to excessive high pressure on the main system. Several years ago, while connected with the Detroit Gas Company they disconnected 2,600 feet of 6-inch pipe, shut off all the service cocks, and tried it out by passing gas through a test meter. Under 3 inches of pressure there was absolutely no leak. By increasing the pressure to 55/10 the same main showed leakage at the rate of 300,000 feet of gas per mile. Again, I think the great trouble with them was they tried to do their work too cheaply. The men doing the work were not taken into consideration sufficiently. In Rochester they had a meeting each month of all the street foremen, their helpers and drivers. They mutually discussed these matters in detail. They were shown that which was wanted was good work to keep down leakage and curtail the distribution expense as well. They tabulated all the complaints received, particularly in regard to leakage, by going over them carefully. One great trouble, he believed was, they did not get at and repair a leak quickly enough. As an instance. Last winter a leak was reported to the office by telephone. The street foreman started on the job at once. Returning he reported he could not detect an odor of gas. On receipt of a second complaint I went personally with him. One could scarcely detect an odor of gas in the street, but on investigation they finally found a break in the main with the ends being separated about ⅛-inch. They did not watch carefully enough the tapping of their gas mains, allowing too much gas to escape. In testing their services and meters the best men on the force were put on such jobs. As to laying gas mains on concave blocks. He did not believe in the practice, for if the said blocks were put too high, one had to dig out and lower the pipe, and that required careful fillings. In Rochester, miles of pipe passed through conduits. On taking up the question of changing this, they found it meant a much greater expense, so now they left a ¼-inch space around the pipe and had no trouble. Somewhere in the paper he speaks of the gas leakage around an expansion joint on a bridge. They had a bridge passing over the river where was laid a 12-inch spiral pipe. They used all kinds of extension joints to stop the leakage, but that was impossible, owing to the vibration of the bridge. Finally they purchased 6 feet of 12-inch metallic hose, putting one piece at each end of the bridge which allows for expansion and contraction, also vibration, and had no further complaint.

Mr. A. Forstall said that toward the end of the paper Mr. von Maur mixed things up some by saying that no large percentage of unaccounted-for gas was due to temperature conditions surrounding the meter. It is true he previously assumed that the amount of gas manufactured would be corrected for temperature, but there was quite a long distance between the assumption and the statement, so he was afraid that many people reading the paper would take it for granted that no matter whether temperature corrections were made or not at the works, Mr. von Maur thought no unaccounted for gas would be due to temperature conditions, which, of course, was very wrong. Unless the amount of gas corrected to some standard temperature, say the mean atmospheric temperature was high in the latitude, a fairly large proportion of the unaccounted-for gas was apt to be due to temperature conditions. He heartily agreed with Mr. von Maur's suggestion that the best method of expressing unaccounted-for gas, was by taking into consideration not only the length of main, but also the number and length of the service. Most of them gave up the percentage system of measurement some time ago. He had been very much impressed in looking over unaccounted-for gas figures, by seeing how rapidly and consistently, but not proportionally, the amount of gas unaccounted-for per mile of main increased with the number of consumers per mile of main. Some English figures particularly first called his attention to it. He thought Glasgow, Scotland, had about the largest number of consumers per mile of main in Great Britain, and also the largest amount of unaccounted-for gas per mile of main. As to the suggestion that, instead of considering the mains at all, they should simply consider the number of services, and give the leakage as being so much per service. This would entirely ignore the leakage which took place from the mains. There was question that there was some leakage in the main system, and if they took only the number of services, they ignored entirely the difference between a well laid main system and a poorly laid one. So, he thought the best way was to take into consideration both the length of the main and either the number of services or their length in feet. As to the suggestion that, in order to lay mains on undisturbed ground, it would be necessary to have in the gang a farmer who had been laying drain tiles all his life, well he couldn't say he had found that to be so. It was a very simple matter, at least it always seemed so to him, to have the ditch ahead of each length of pipe graded exactly to the line that the next length of pipe should rest on. The regular diggers brought the ditch down to within an inch or two of the proper depth. The man in charge of the gang actually laying the pipe was provided with a straight edge, on one end of which was tacked a piece of wood the thickness of the joint. That end was laid in the open bell of the last length of pipe laid and this raised the bottom of the straight edge to the level of the bottom of the pipe. Then the section of the ditch in which the next length of pipe was coming was carried exactly to the grade that was being followed on that particular run, the thickness of the joint being allowed for. There was a little trouble until they had trained the men, but once trained, the work went on very quickly, and they thought that it paid.

Mr. A. S. Miller said he noticed that Mr. von Maur's experience in St. Louis was to the effect that the greater part of actual leakage did not originate in the joints. His experience in other cities, with pipes laid previous to 10 or 15 years ago, was that due to the vibration caused by the street traffic, and due to the change in temperature, the lead tended to work out of the joints, permitting the yarn to become loose and causing leaks. That was, where the hubs were not provided with lead creases or where the lead creases were shallow and badly designed. In many cases the joints may be overhauled and lead driven every few years, yet they would leak almost all the time. There were very few cities in which one could make an excavation in or near a gas pipe that had been laid for 10 or 15 years without smelling gas. There was a large amount of leakage in such old pipes, and much had been accomplished by the American Gas Light Association and the American Gas Institute in improving lead joints. These could be made to-day that would stay tight, and that was impossible with the majority of the pipe made 15 years ago. The making of the joints in gas pipe being a matter of great importance, it was surprising that neither the author of the paper nor those who discussed it had mentioned the importance of making good joints, except under the general terms of doing good work. The suggestion is made in the paper (it is in quotation marks, but the text does not indicate the source of the quotation) that cement joints can be made tight by driving in 2 inches of lead.

Mr. von Maur said that was an error.

Mr. Miller continuing, said, one could tighten joints temporarily with lead but they would not stay tight. In his experience the less lead that was put in a joint the better it was. The joint should be filled with yarn, leaving only sufficient room for enough lead to hold the yarn in place; from 1¼ to 1½ inches should be sufficient. Some years ago he had a number of experiments to determine what effect motion would have on lead and yarn joints. The latter were made with plugs in hubs, having different forms of lead creases, and the plugs were jacketed back-and-forth in the hubs until the joint between the lead and the surface of the pipe was broken, leaving space for a leakage of gas, if the yarn were not gas tight. These experiments demonstrated that, where the hub was so designed as to hold the lead in place and where sufficient yarn was used and properly packed, the plug could be moved back-and-forth many times without causing a leak. On the other hand, if the hub were not designed to hold the lead in place, or if the yarn were insufficient in quantity or improperly packed, it took but little motion of the plug to cause leaks. In the case of cement joints the problem was a different one, and as much cement should be put in as possible. He agreed with the previous speakers that percentage was not a safe or satisfactory standard for measuring leakage. There might be several companies, each selling the same amount of gas, that would vary as much as 100 or 200 per cent. in the number of services, in the mileage of mains, or in the number of meters. In such case the loss per mile or main per meter or per service might be the same, while the percentage of loss based on the sales would vary greatly.

Mr. F. N. Speller said, two things in Mr. von Maur's paper interested him particularly. First, the experiments and conclusions on the question of the relative difference between bare wrought iron and steel pipe under corrosion. Mr. von Maur's test might be classed as a practical corrosion test, and from investigations which the Research Department had made during the past year, on cases of corrosion where both iron and steel pipe were exposed together, he felt perfectly safe in saying off-hand that 100 similar comparisons could

be added, all pointing to the same conclusion. The fact having thus been well settled, in so far as pipe is concerned, that between steel and iron as a class there was no perceptible difference in durability, they were forced to the conclusion that, as both deteriorated altogether too fast under some modern conditions, the question of uppermost importance these days was, what protective coating could be applied so as to defend the metal against the action of moisture and electrolysis. The second point of special interest, in view of the encouraging results obtained with the wrapped paper covering. The National Tube Company recently put on the market a coating constructed along these lines, a sample of which was shown applied to 6-inch pipe. The outer-wrapped reinforcement consisted of a strip of burlap, about 6 inches wide saturated with a special coal tar pitch and wound tightly on the pipe over the foundation coat, put on so as to be as nearly as possible waterproof. They kept in mind *the* important point in applying this coating, that all moisture must be excluded. More would be heard as to the development of this coating in the future, and for the present he hardly thought there was anything more to add than to let them know they were following up the question of the protection of pipe along these lines. He would ask Mr. Forstall whether, in addition to the tests referred to in this discussion, where the steel pipe proved superior to iron, both being protected with U.G.I. coating, he had not records of similar tests with pipe uncoated.

Mr. Forstall said he believed that they were now conducting a comparative test in Philadelphia as between wrought iron and steel pipe, under the direction of their Engineer of Tests. He was not sure whether it was coated or uncoated pipe. Personally he was interested in coated pipe only, because the coating, as shown, costs so little, that he would hate to do without it until he found, from at least 20 years' experience, that uncoated-pipe had as long a life as the coated sort. As he could not get this experience on a large enough scale to satisfy him, without risking the chance of early corrosion of many services, he continued using coated pipe.

The Chairman asked Mr. von Maur to close the discussion.

Mr. von Maur said he believed the Supreme Court had ruled that everything must be reasonable, and it would be unreasonable to expect him to keep in mind all the questions asked. There were about fifty of these, but he thought he could answer them satisfactorily since most of them were due to misunderstandings. As an illustration, in respect to the item "Broken by sewer." A sewer might break a pipe laid last year, on account of the sewer being laid on the pipe, but it did not follow—it was not unreasonable at all. Everything stated as a fact was a fact, and whenever one gets a little data like that and accepted it as a fact one might finally find he was inconsistent. As to the remarks by Mr. Alfred Forstall on temperature. What he referred to, of course, was that the gas should first be reduced to say 60°, as was done in St. Louis. Then, gas being reduced to that standard, one had a variation during the winter and summer, and if the leakage curves were examined one could find that the summer months always showed low. Why was that, if it were not the meters and the temperature. A meter in a hot cellar, of course, may have a slight variation from one in a cold cellar, yet the average conditions throug hout the year, did not make very much difference, which was particularly important for the works' man, because on going to the works' man he tells exactly where the leakage is. It was, of course, in the variation of temperature. As to the impracticability of laying pipes in undisturbed ground, that might be due to the character of the ground. In St. Louis they absolutely lay their pipe on an undisturbed ground. The clay there being very hard to dig, they could smooth it off like a stone. The largest size pipe was put down on block, the pipe resting on that block and on the ground as well. Now, the point was how one would make it do both. Suppose 2 inches space is under the pipe, and it is laid on the blocks, it was a simple matter to throw on sod dirt, pounding it down so that one got the benefit of the ground support. Take, for instance, the 24-inch pipe which weighs a ton. With ½ ton on each block, one had a concentrated load. If there were a slight space, say ½ inch between, as soon as the blocks set that ½ inch, they immediately got increased support from the earth. About those leaks, and as to making service connections and broken mains, and all that sort of thing, where large quantities escape in a short time, on figuring it out, one will find it a very small percentage of the total. That was the reason he quoted the bit of poetry at the beginning of his paper. In making a service pipe test, say on a block of main 500 feet long, and note that the meter moves in 1 foot in an hour, it looks as though one had a pretty tight main, and yet it lost 87,570 cubic feet; and he could double that, not because there was anything wonderful about it, but just to accentuate the tremendous quantity that escapes where the leak is sustained. A $\frac{1}{10}$ of a cubic foot leak per hour may not be smelled and one cannot light it—it would be about ½ as large as the pilot on one of these No. 73,106 (I don°t know whether that is the right number) lamps, yet it is very small. But figure, assuming a certain number of continuous hours of burning, and measure it on that meter and see what result is obtained. The same way with the lamp that is supposed to burn 3 feet per hour. They had about 20,000 lamps in St. Louis, that are all put on the controller and are tested periodically—he thought the paper put it at about 18—and the average of these was practically perfect. Assume a very small leak at that end, and it will run up into tremendous figures during the year. Regarding the joints where the cement was put in first and the lead afterwards, he understood later that, in the public service calculations (he believed Mr. Hellen gave him that information) they tried all kinds of joints in high pressure mains. He believed they had gone into 20-inch mains now, and that was the only joint found satisfactory. He did not know whether the experiments had been going on long enough to get a correct estimate or not, but it was in line with what they were nibbling at. Respecting vibration, if they recollected his paper on cement joints, read by him in Cleveland some years ago, something was mentioned with reference to elasticity in such joints. He put a block of 4-inch main in the heart of the city, 2 feet away from the rail of 2 railroads, both of which ran 25 trains per day. These mains were examined the other day, and they seemed absolutely tight, even with all that vibration going on. A word about high pressure main tests. While there were not very many leaks in his judgment in cast iron joints, he did not wish that to apply to high pressure. What he referred to was 5-pound, high pressure, especially where the pipe was of large size. Take 24 inch joints, at 5 pounds, it was an exceedingly difficult thing to get them perfectly tight; he thought that if he had any more he would recommend making the joint of cement, and then put on a clamp while the cement was still fresh. He believed they had men trained now so they could trace a joint as soon as made, and while the cement was still fresh, put on a clamp. He imagined that that cement would probably protect the rubber. He would like to know (the question was important because it meant money) how Mr. Forstall knew when to overhaul a main? Did he simply take a street like the one outside, pick a few holes and examine the joints, or did he wait until he had some joints reported, then follow up until the leaks were found?

Mr. W. Forstall said most of their paving in Philadelphia was of asphalt or vitrified brick, with a concrete base. Under these conditions they never hunted for leaks in any main about which no complaints had been received. When leaks were reported they did whatever work was necessary to stop such leaks. Of course, if in hunting for leaks, they discovered that a 2-inch or 3-inch main had insufficient cover, or from any information that they get by inspecting a service opening, they decided that the main was of uneven thickness, then they would probably replace such a main with a larger size.

Mr. Von Maur said that in such connection some of the things recommended indicate that they had not reached a state of perfection. For instance, the joint he had shown was simply to illustrate that it was a proper way of doing it. They had not had anyone do it yet; and the recess coupling that Mr. Forstall mentioned was a thing they had in mind. He believed they would use it as soon as they could.

(To be Continued.)

[CONTINUED FROM PAGE 128.]

PROCEEDINGS, FOURTH ANNUAL MEETING, INDIANA GAS ASSOCIATION.

HELD IN THE CLAYPOOL HOTEL, INDIANAPOLIS, IND., JANUARY 17 AND 18, 1912.

SECOND DAY—MORNING SESSION.

The President, having called the session to order, announced that the regular order called for the discussing of the paper by Mr. Kaufman. That discussion was put over so that the Association might adjourn to the meeting hall of the Eli Lilly Company, to listen to the lecture by Prof. Parr. He thought the

LILLY COMPANY'S COURTESY SHOULD BE FORMALLY ACKNOWLEDGED,

(*Continued on page* 140.)

THE AMERICAN GAS LIGHT JOURNAL

Entered at the Post Office, New York City, as Second-Class Matter.

Published weekly at 42 Pine Street, New York City.

Telephone Call, John, 2996. Cable, Am-Gas.

A. M. CALLENDER & CO., . . Proprietors.

THOMAS J. CUNNINGHAM, ELBERT P. CALLENDER, } Editors.
H. THURSTON OWENS, . Associate.

CHARLES H. WADELTON, Manager.

Agents—American News Co., 11 Park Place, New York City.
Lemcke & Buechner, Berlin, Germany.
Aug. Siegle, 30 Lime Street, London, England.

TERMS OF SUBSCRIPTION.

United States, Cuba and Mexico, $3 per year. Canada, $4 per year. All other countries, $5 per year.
Single Copies, 10 Cents.

NOTICE TO ADVERTISERS.

New Advertisements and changes of copy therefor should be in hand Wednesday noon of week prior to date of issue.

NEW YORK, MONDAY, FEBRUARY 26, 1912.

[Official Notice.]

Annual Meeting, Illinois Gas Association.

Illinois Gas Association,
Temporary Office of Secretary,
Dixon, Ills., January 17, 1912.

To the Members, Illinois Gas Association: The next annual meeting of the Illinois Gas Association will be held in the Auditorium Hotel, Chicago, under dates of March 20th and 21st, 1912. Papers on these subjects are being prepared:

"Coke Breeze."
"Up-to-date Gas Lighting."
"An Illinois Gas Man's Impressions Abroad."
"Two Pounds Pressure at the Tip. Why Not?"
"High Pressure Distribution."
"Liquid Purification."
"Photometer Work."
"Study of a Water Gas Machine."
"Commercial Paper."

F. E. Newberry, Secretary.

[Official Notice.]

Fourth Meeting of the Pennsylvania Gas Association.

Pennsylvania Gas Association,
Office of the Secretary,
West Chester, Pa., Feb. 21, 1912.

To the Members, Pennsylvania Gas Association—Gentlemen: The fourth meeting of the Pennsylvania Gas Association will be held in Williamsport, Pa., the 10th, 11th and 12th days of April. Indications are that it will prove successful and interesting, possibly more so than any other preceding one. Let us work to that end. Any communications addressed to the Secretary, care the Chester County Gas Company, of West Chester, Pa., will receive prompt attention.

Yours truly, W. O. Lamson, Jr., Secretary.

[Official Notice.]

Fourth Meeting, Southern Gas Association.

Office of the Secretary,
Southern Gas Association,
Atlanta, Ga., Feb. 19, 1912.

Gentlemen: The Fourth Annual Meeting of the Southern Gas Association will be held in Jacksonville, Fla., April 17, 18 and 19, 1912. The following papers are promised:

"Further Notes on Public Policy," by Mr. R. C. Congdon, Atlanta, Ga.
"Better Domestic Appliances," by Mr. C. A. Case, Cleveland, O.
"Scientific Salesmanship as Applied to the Gas Industry," by Mr. Albert B. Kelley, Philadelphia, Pa.
"Gas Lighting in the South," by Mr. H. P. Dains, Philadelphia, Pa.
"A Practical Demonstration," by Mrs. S. R. Dull, Atlanta, Ga.
"Practical Experiences in the Gas Business," by Mr. Rosco Nettles, Tampa, Fla.
"The Influence of Various Departments on Commercial Work," by Mr. Chas. D. Armstrong, New Orleans, La.
"System in Office Management," by Mr. L. N. Young, Athens, Ga.
"A Study in Retort House Practice," by Mr. S. H. DeFrese, Chattanooga, Tenn.

Hotel and railroad rates will be announced later.

E. D. Brewer, Secretary.

[Official Notice.]

Annual Meeting, Wisconsin Gas Association.

Office of the Secretary,
Wisconsin Gas Association,
February 20, 1912.

To Members of the Wisconsin Gas Association: The date of our Annual Convention has been set for May 15 and 16. The Executive Committee, being determined to have this meeting go on record as one of the best in our Association history, has outlined plans, which, if they meet with the hearty support of our members, will unquestionably insure the desired results, from both a business as well as social standpoint.

There will be several good papers, of a practical nature, in which everyone will be interested, as well as some of the technical variety, from which a good many of us will profit. There is in preparation one on "Illuminating Engineering," a subject of almost unlimited scope; also another, having particular bearing on the tribulations of the gas man under severe climatic conditions, such as our section of the country has recently experienced, under the title "Maintaining Service During Extreme Cold." No doubt, most of us have recently made valuable additions to our previous supply of knowledge on this subject, and it is expected that this paper will stir up quite a lively discussion.

Furthermore, it is our intention to secure, as one of the numbers of our programme, the services of a member (preferably the chairman) of the new "State Industrial Commission," to explain to us the practical operation of the new Workmen's Compensation Act.

Now, for the technical end of our programme. How many of our Wisconsin members have ever given a thought as to what our State is doing in the chemistry line (as far as this relates to the gas business) at the University at Madison? Our Committee reasoned that, by getting in closer touch with the heads of our State University, who make it their business to delve into the mysteries of gas chemistry, such a course might, and no doubt will, be of mutual benefit. Arrangements are accordingly under way, which, if successful, will result in a treatise by one of our University Professors under the title of "The Gas Chemistry Course of the State University; I s Aim and Advantages to the Gas Industry." Looks good; doesn't it?

Aside from the above, the selection of subjects for additional papers is to be decided by the Association members themselves by referendum vote (right up to-date) everyone being invited to s nd in to the Secretary the title of some subject on which he desires enlightenment. From this list one or more will be chosen and assigned for treatment by someone most likely to do justice to the subject.

Then, there is the "Question Box." Of all the simple contrivances ever invented for the solution of the gas man's problems, it must be admitted that this feature of our meetings has been sadly neglected of late. The Committee has decided that we shall have a revival of this institution; and, therefore, "Fire in" your questions to the Secretary, duly signed, and some good fellow will furnish the answer at our next meeting. No names will be published.

Don't hesitate to send in any question on any subject that is of importance to you. If it cannot be answered to your satisfaction at our own meeting, remember that our affiliations with the American Gas Institute entitle us to their assistance in such matters; it has been freely tendered, and should be accepted when necessary. Don't be too modest in the matter. So much for the business end of our meeting.

A committee, suspected to be competent in such matters, has been

charged with the arrangements for the usual banquet with which to properly intersperse our meetings; and, unless all signs fail, the members of the Wisconsin Gas Association will have good reason to remember the time, the place, and the occasion—Hotel Pfister; Milwaukee; May 15 and 16, 1912. HENRY HARMAN, Secretary.

BRIEFLY TOLD.

OBITUARY NOTE, MR. EUGENE H. YORKE.—Again we are called upon to note an inroad of death in the ranks of the fraternity, by reporting the loss of Mr. Eugene H. Yorke, who passed away, at his home in Portland, Me., the morning of the 18th inst. During the meeting of the New England Association of Gas Managers (the third week of this month) it was known that Mr. Yorke's non-attendance was caused by illness, and, while all were certain that it must have been serious trouble that beset him—in that he was one of those who, in fair weather or foul, could be counted on to respond to his name at roll call—none imagined that such illness would result fatally. Born in Portland, 57 years ago, he was really to the manner born, for his father (the late William Yorke) was connected with the Portland Gas Light Company almost from its start. Graduating from the Portland Public High School in 1875, and having acquired quite some practical knowledge respecting the gas industry from being often with his father in and around the Portland plant, in 1876 be took charge of the Calais (Me.) plant; later on the Eastport (Me.) works. In 1879 he accepted the position of Superintendent of the Lynn (Mass.) Company, which was then in rather uncertain state, mainly through the many vagaries of its financiers. Having a desire to engage in business on his own account, he started as a constructing engineer, and amongst the tasks carried out by him in this respect were those concerning the rebuilding of the gas plants in Eastport, Augusta and Bangor, Me. He next engaged as a consulting engineer (we believe for the W. Eliot Fette syndicate of Boston), which controlled two or three small plants in Massachusetts—one of which was Plymouth and another was Chicopee—and (1888), having in the interim declined offers to take charge of plants in other sections of the country, he assumed the management of the Brockton (Mass) Gas Light Company. During this incumbency he built the plant of the Natick (Mass.) Company, and acted in a consulting capacity for the works in Woonsocket and another point in Rhode Island. In 1896 the physical condition of his father had become considerably impaired through increasing age, and (1896) he returned to Portland, to assist in the engineering direction of the gas plant. In 1897 the senior Yorke died and the son was appointed to succeed him, with full power and authority. His record there, right to date, was one of unbroken success; in fact, through his intelligent direction of its affairs much profit has resulted to its owners. As was before noted, his connection with the New England Association was always of the active sort. He was elected to active membership therein at the tenth (1880) meeting, and was a frequent contributor to its assemblies, as to the preparing of papers, the submitting of questions and participating in debates. A notable contribution by him was made to the 1899 meeting of the Association, the subject of which was "The Question of Enrichers." He was a frequent contributor to the JOURNAL, and his articles were often reprinted in our contemporaries abroad; and in 1898 he compiled a very clever volume entitled "Excerpts from Decisions of the Board of Gas and Electric Light Commissioners of the Commonwealth of Massachusetts," which had quite a large circulation. It should have been earlier mentioned that his other fraternal association affiliations were: Active membership in the American Gas Institute, the Guild of Gas Managers and the National Commercial Gas Association. Other bodies with which he was actively connected were: Neptune Lodge, New York; Ancient Order American Workmen; the Portland Club; the Portland Athletic Club, and the Portland Board of Trade. He was an active member of the Universalist Church, and in politics was a pronounced Republican of the old school. In 1890 Mr. Yorke was united in marriage to Miss Ethel Lowell Clark, of Jamaica Plain, Mass., a union that was marked with and by harmonious companionship throughout its length. Mrs. Yorke survives him, as does a daughter. Personally he was known to the writer of this record for 2 score years, and he states but the simplest truth in saying that Eugene H. Yorke was in every sense an estimable man from every standard, from every viewpoint, and it is the writer's pleasure to here reprint a paragraph that appeared in the obituary mention of deceased in the Portland *Express*, of the 19th inst., in the remark that every word thereof is literally true: "Personally Mr. Yorke was very popular with his business associates. His thorough knowledge of the gas business in all its relations, actualities and its possibilities was great; and he was never exacting beyond the lowest requirements of a position filled by one of his men." For courtesies in connection with the above topic we are indebted to Mr. Burton Smart, Treasurer of the Portland Gas Light Company, and to Mr. E. E. Witherby, of New York.

FEBRUARY MEETING, SOCIETY OF GAS LIGHTING.—The Society of Gas Lighting held its February meeting at the Hotel Astor, the evening of the 8th. It was of more than ordinary importance, in that as specially invited guests at the dinner which followed, at 6:30 P.M., the assemblage numbered these: The Hon. Ira C. Copley, President, American Gas Institute, and Dr. Charles F. Chandler, for a long time on its honorary membership roll. The meeting in the afternoon was particularly interesting through the discussion of the paper by Mr. A. H. Strecker, of Newark, N. J., on "Comparative Costs of Cooking by Gas and Electricity." This paper was read at the January meeting, and its text will be found on page 131, current issue. In addition to the regular (or New York) members at the table the out of-town members were: Messrs. T. R. Beal, Poughkeepsie, N. Y.; H. Bruce, Baltimore, Md.; E. G. Cowdery, Chicago, Ills.; S. P. Curtis, Philadelphia, Pa.; J. A. Norcross, New Haven, Conn.; R. M. Searle, Rochester, N. Y. With this named array of talent it goes without saying the "after dinner" programme was interesting and enjoyable.

FEBRUARY MEETING, I. E. SOCIETY, PHILADELPHIA SECTION.—The regular monthly meeting of the Philadelphia Section, Illuminating Engineering Society, was held Friday, Feb. 16, at the Philadelphia Electric Company's Building, 1000 Chestnut street. It was called to order at 7:50 P.M., by Mr. J. D. Israel, Chairman, with an attendance of 173 members and visitors. The dinner preceding the meeting was shared by 63. The minutes of the January meeting were read in abstract and approved as read. The Secretary abstracted the Report of the Council Meeting held in New York, and the Chairman followed with a list of the papers to be presented before the Philadelphia Section during the balance of the season. The programme of the evening was opened by Prof. A. J. Rowland, whose educational talk on "Candle Power," was actually authoritative. It was the second of a series of 5 similar talks. Dr. George A. Hoadley, of Swarthmore College, read the paper of the evening on "Physics of Light." It was illustrated by lantern slides and practical demonstrations. Upon motion of Mr. R. B. Ely, the following resolution was unanimously adopted:

"*Whereas*, The present standard symbols for electric wiring and gas piping on plans are inadequate for existing conditions, and have not been universally adopted, particularly by the Illuminating Engineering Society; be it

"*Resolved*, That the Chairman of the Philadelphia Section of the Illuminating Engineering Society appoints a Committee of 5 members to consider plans for suggestions to, and conference with, the Committee on Nomenclature and Standards of the Illuminating Engineering Society, in order to bring this matter up for further consideration, leading towards definite conclusions and standards."

The following gentlemen took part in the discussion of the papers: Dr. Spitzka, and Messrs. R. B. Ely, C. O. Bond and R. F. Pierce.

CURRENT MENTION—

THE Boston branch or headquarters of the Beler water heater, in the premises, No. 14 Tremont street, that city, under the efficient management of Mr. W. F. Spear, is now in full action with its demonstration work. The new model is the result of much study, experimentation and trial, and in its construction copper gauze is used. Mr. W. J. Langenheim, the wideawake Secretary and Treasurer of the Beler Automatic Company, with headquarters in 311 Water street, Pittsburgh, Pa., declares that the new model will surprise the fraternity by the simplicity of its action.

MR. SAMUEL T. BODINE, Vice-President and General Manager of the U. G. I. Company, is back at his desk much refreshed by a mid-winter vacation, spent in Jacksonville, Fla., despite the fact that many "northers" swept the coast during his stay there. He is quite enthusiastic over the positive signs of material progress that are everywhere cropping out in the South.

(*Continued from p. 137.*)

and asked the Secretary to read a resolution which had been prepared to the end named.

The Secretary read the following:

Resolved, That the Indiana Gas Association extends to the Eli Lilly Company, its sincerest thanks for the generous courtesy of that Company in granting to our Association the gratuitous use of the laboratory and lecture hall, for the lecture by Dr. S. W. Parr, on "Calorimetry" and "Surface Combustion," in connection with the Association's annual meeting.

On motion of Mr. Dykeman (seconded) the resolution was declared carried, the vote being *viva voce*.

Discussing the Kaufman Paper.

[For the text of this paper, *ante*, p. 119.]

The President said that in discussing Mr. Kaufman's excellent paper he hoped many would join, and while they were to have much business to occupy them, he believed the paper was such as to justify them in giving ample time to its full and free discussion. He would here say that last year members were not properly credited with speeches through not giving their names to the Secretary when they arose. He asked, in the interest of obtaining a correct report, that each announce his name.

Mr. Eves—Mr. President, I have the pleasure of saying for the first time, ladies and gentlemen, because we are glad to have ladies in this discussion. Before beginning the actual discussion of the paper, let me say I believe it one of the most interesting and serviceable papers to gas companies that could have been presented. The suggestions made will be valuable, not only to the smaller gas companies but to all of us. The matter strikes the keynote when saying that business can be obtained by hustling for it systematically. That is the thought I want to give you this morning. We must have system, and we must get busy. Only one point in the paper seems worthy of special attention. A great surprise to me, as well as to many others connected with the Association and gas companies, was the small percentage of people in Lafayette using the broilers of their gas ranges. Mr. Kaufman says that if 200 women were in the hall or office only about 15 per cent. would acknowledge any use of the broiler at all; that 85 per cent. made as excuse that the broiler was not used because it got the broiler pan dirty, etc., and I always contend that the most important part of our work is to educate our consumers in the proper, full and economical use of the appliances. If we carry on this system of education, by means of demonstrations and otherwise, we can obtain a very much larger percentage than 15 who will be using the broiler of a gas range. Incidentally, I want to mention that in another report I said that, out of nearly 2,000 cases we investigated to get data upon this point, 92 per cent. in Indianapolis used the broilers. This is owing to the systematic education which had been going on a number of years. I feel sure, however, that Mr. Kaufman's figure is one which would not be justified if actual tests were made, and that Mr. Kaufman would find that a very much larger number than 15 per cent. would be using the ranges to fullest extent. As this is practically the only commercial paper outside of the one on industrial appliances, I am sorry the most interesting subject of paper bag cooking was not referred to. We found, by taking up this question thoroughly in Indianapolis, that the women patrons of the gas company are not only deeply interested but that they are very gratified when information is given to them on this comparatively new method of cooking. We have had, in connection with our work of demonstrating the paper bags, practically all the schools and the domestic science teachers of our city, and those teachers, having received instruction in paper bag possibilities, are now teaching that method of cooking in the public schools. One teacher claims that paper bags are not only assisting in their work, but are helping people to get better results from their cooking, through saving the cost of foods by retaining the weights thereof when cooked in the paper bags. Therefore, they are not only doing a service to the children of the schools, but are carrying this service in a very practical manner and in an economic sense into the homes of our city. I want to offer this word of advice to the gas companies of our State: That they take up, by means of demonstrations and otherwise, this new-old method of cooking in paper bags, and to say that the Indianapolis Gas Company will be glad to give any advice it can offer along these lines at any time. [Applause.]

Mr. Ridenour—It occurs to me the thought running through the paper by Mr. Kaufman is rather the number of appliances sold, and while this is a commendable feature and I would not detract from his success in this particular field, I would rather judge the efficiency of any new business department in the net profits that this department can show at the end of the year, or month. It usually does not take much effort to sell appliances, if the New Business Manager does not care what he gets for them, permitting the loss sustained by his department to go into the cost of gas for that particular month. I contend it is often that the New Business Manager overlooks the cost of the business he gets and the losses that his department sustains, for he knows this must be taken care of at the end of the month by the auditing department. A new business department that is not self-sustaining is a failure, and this must be self-sustaining, in every sense of the word. You must add every expense, a portion of the rent of your office and salesroom, advertising, your light, the time that your manager devotes to this department, and numerous other charges. Then if you show a net profit you have a successful new business department, not until then. You must get your department down to a commonsense business basis, remembering that an elaborate and expensive campaign for a city of 50,000 to 60,000 will not do for a city of 10,000 people; and, even if your appliance sales amount to $10,000, it means nothing to me if you do not tell me what you made for your company, not in the increased sale of gas, but from the sale of your appliances. There is no other business conducted on such a basis as the new business department of a gas company is usually conducted, and you confess failure of your department when, to satisfy your general manager at the end of the year, and to excuse your losses in this department, you call his attention to the increase in gas consumption resulting from the sale of your appliances. I know you can make your new business department self-sustaining and a source of profit to your company. I have in mind a small city of 10,910 population who last year took 60,000,000 cubic feet of gas, and has a self-sustaining new business department that each year shows a neat little profit from the sale of appliances. It is possible that, being connected with the auditing department, as well as the sales department of a gas company, makes me a little particular as to the showing that the new business department should make in the profit and loss account. Too many of our new business managers, in their efforts to make a flashy showing, lose sight of this very important point of profits derived directly from their department, and I think we should give this subject more serious consideration than we have in the past.

Mr. Olds—Last night I heard it rumored that a good many proposed to "go after" Mr. Kaufman. I came here with a good deal of interest to hear what was said. The paper has many valuable points, not only for the new thoughts brought out but for a great many old ones. Papers of this type are exceedingly valuable in creating new ideas and resurrecting the old ones, so we can go ahead next year doing a great deal better. I always like to hear papers of this kind read at the Associations. Several years ago a paper was read before the Ohio Gas Light Association on instructions to distribution employees, and while there was hardly anything in those instructions but that we all knew, still a great many things were recalled which we had forgotten. It is always well to read them over in order to bring back to your mind the things you have forgotten. Mr. Kaufman has written many things that we have forgotten. I certainly hope that those people who are going after Mr. Kaufman will commence. [Applause.]

Mr. A. A. McLeod—I do not know whether Mr. Kaufman follows up this office demonstration work with any house-to-house demonstration. Listening to his paper it seemed to me the things he was trying to do with an office demonstration could be accomplished in a better way with house-to-house demonstrations in the consumers' homes. Now it seems to me in demonstrating work your sales of appliances are not the important thing. Three important things are in a demonstration: 1. To teach your consumers how to use their gas ranges and how to keep them in commission; if people do not know how to use them they will turn to either coal or wood. 2. To create in the minds of the consumers an idea that the Company is looking after their interests; is interested in the fact that they have good food on their tables, an altruistic idea. That is what we want to impress upon them. 3. To interest people who have no gas ranges. It seems that, for the first item in an office demonstration, a great many people will come in who may not know how to use a broiler, but who will watch the demonstration. Getting an imperfect idea of the way the broiler is used they go home and try it and, making a mistake, stop using it. Then they will be back where they started. Unless it is followed up it is a hard thing to get people to learn by observation.

It is a great deal easier for them to learn by actual demonstration in their homes, where the demonstrator may teach them. The second idea, of impressing upon them the company is taking an interest in their well being. It seems that, in the office demonstration, the average woman realizes the advertising value to the gas company. She is used to demonstrations in stores. At South Bend, Ind., they often had in a department store a demonstration in paper bag cooking, or something of that sort, and the people realize the store is not doing that from an altruistic motive. The people realize the advertising value of the big show that the gas company puts up, while in the house-to-house demonstration (the quiet coming into their homes) nobody is supposed to know anything about it, and they are being taught something for nothing. They fail to get the advertising value of that to the company as compared to an office demonstration. Most women would think that was something the company was doing for their benefit. As to interesting consumers who have no ranges. We gave 5 demonstrations at one time in a small town, and averaged about 100 people at each. We had them sign their names and addresses when they came, stating whether they used a gas range or not. Of the 500 only 15 did not have ranges. We did not get the people who did not have the gas ranges, but if your demonstrator goes from house-to house she gets in places without ranges, and the person who has no gas range maybe has a friend who has. The friend has told her that the gas company had a demonstrator who would come and show her how to bake pie and biscuits and how to cook meat, etc. The best thing is to have the services of a good demonstrator all the year around. He hoped Mr. Kaufman would tell them about what those demonstrations cost him. It seems to me a demonstrator kept all the year round to do house-to-house work would be at least as inexpensive, if not cheaper. In South Bend last year 2,500 women were taught how to cook in their homes; not saying anything of calls from house occupants in which we had no consumers at all. We had 2,500 house demonstrations by one demonstrator, and when the latter finished such people at least knew how to use the range. The demonstrator was just simply an overseer for that housewife in whatever she was going to do, and the woman actually learned how to operate her gas range, and was told to let the demonstrator know if everything was not satisfactory and she would come back again. It seems that had a more lasting effect than an office demonstration of a few weeks. [Applause.]

Mr. Travers—I think the ground has been thoroughly covered in the discussion regarding the paper of Mr. Kaufman by the gentlemen who have contributed to it. Along the line of practical demonstration Mr. Kaufman says there can be no practical demonstrations unless there enters into the demonstration a commercialism. To use his owns words, "Commercialism must be injected into that demonstration to make it successful." I take it a practical demonstration is the strongest form of proof, and I know from experience that all of the other gas companies who give demonstrations throughout the State do not give them unless they have in mind the injecting into their demonstrations the commercial part of it. In Indianapolis, where we have been giving for some few months, demonstrations to the school children of our city, the higher grades of the different schools, their domestic science teachers bring them to our office. There we have our demonstratress demonstrating to those pupils of the higher grades. There is commercialism in that demonstration, as there is in the house-to-house canvas that we give in our city. Many children who have never had any experience or have never had teaching in the working or the management of a gas range receive it right there. Going home with the different dishes prepared for them by our demonstrators, they explain the time it takes to cook those articles, and they and their mothers are undoubtedly anxious to try to follow along the lines of our teaching. I am sure commercialism is in this. Those young pupils of the city schools will someday be the housewives in Indianapolis and, of course, it behooves our Company, and other gas companies throughout the State, to look to the younger generation that is coming up, the girls in the higher grades of the public schools. I would suggest for the different gas companies throughout Indiana to look into the matter of getting in touch with the larger girls of the higher grades of the public schools and place the matter of domestic economy before them. I am sure in that way the revenues of the different gas companies throughout the State can be greatly increased.

Mrs. Olaf N. Guldlin, of Ft. Wayne—Mr. President, Ladies and Gentlemen: I feel that one-half the story of this great paper was not told. I would like to have told to us how to send a woman demonstrator to kitchen to demonstrate these vital things if she has not a gas stove; so many of those people you won't reach unless you have these public demonstrations. Let me narrate to you some of the practical work that has grown out of public demonstration. I started a demonstration, Mrs. Hafner conducting it. Our gas company gave it. She was so skilled that she got in all the churches. In fact, she had apparently the whole town studying to learn cooking. Mr. Eves is really too modest to tell you the wonderful work they have been doing in Indianapolis. Of all the religious revivals I have seen, none compare with the "gas-cooking revival" meetings they have been holding here. I attended one of his meetings to see these children. I had read quite a lot about paper-bag cookers, but had not seen them. Going home, we soon had a company of women in my kitchen bent on solving the mysteries of paper-bag cookery. First, I experimented on it myself to prove its worth. Then Mrs. Philips, of the Gas Company, came along and we repeated this experiment in my kitchen and saw how good a thing it was. Many are using the paper-bag cookery and it is really so popular that my husband and Mr. Mulholland are going to pipe gas up to our garret, so we can have demonstrations going on all the time. I met in Chicago one of the demonstrators for the Domestic Science Clubs of America. She said, "Oh, well; I can bring a crowd if I teach them fancy salads and cake baking." You notice how Mr. Kaufman speaks of that kind of cooking. It is substantial cooking he wants to teach, so that the people may know how to prepare nourishing food, broil beefsteaks, cook roasts, make good, wholesome bread to build up strong bodies. We have all the ablest experts in the country, from Columbia University down, working for the domestic science department in the Federation of Women's Clubs. Had I thought about it I would have brought the State reports to show how domestic science is creeping into every State, into every club. Do not confine your work to commercialism, but get to the height of realizing that you are really employed in a great educational campaign. [Applause.]

Mr. Graf—I wish to agree very heartily with Mr. Kaufman's methods of doing business. I think they are progressive and up-to-date and bound to get results. As to Mr. Ridenour's expressions, I agree with him that a new business department should be self-sustaining, but I do not believe that it should be a source of profit to the Company. As an illustration, every year we lay miles and miles of mains, and not in 1 case in 100 do we make anything out of the mains the first year. We expect to get our profit some time in the future. The sale of appliances in most cases is the means of getting a consumer. Each consumer that we have is an asset to our Company, who really has a book value. I think in Chicago Mr. Hagenah estimated that the value of a consumer was $27. Every business recognizes that it costs money to get a consumer, and that it is part of our business, and there is no reason why the getting of new business should not be capitalized. I do not recommend it, but I do not see anything against it. In our case we have been trying to make our appliance department self-sustaining. It cannot be done every time. If we had the entire sales of gas appliances in this city, we could probably accomplish it. We are interested in every gas stove that burns our gas, regardless of whether we sell the range or not. When a dealer sells a range we are put to the cost of connecting. I do not believe we need fear a loss in our appliance department if we can develop our sales of gas.

Mr. Draper—Mr. Kaufman's paper, if I am not mistaken, contains a statement that there was some preparation you could apply to gas ranges that had become terribly rusted and worn considerably. I would like Mr. Kaufman in his reply to the discussion to tell, if it is no secret, what he uses for cleaning the ranges and how to keep them clean. I just got here and heard this discussion about demonstration work, and if there is anyone in the commercial appliance line any more interested in this work than I am, I have never had the pleasure of meeting him. I took up the work 7 or 8 years ago on my own account from the mere fact that, oftentimes when I wanted to give an ordinary gas stove demonstration the lady on whom I depended was not available, and, after having made the dates with the gas company and my promise was out to give a gas demonstration at a particular time, I wanted to keep the engagement and fill the dates myself. There is no single kind of demonstration work that does not get results, I don't care what the practice is. A company for which I did some demonstration informed me by letter that, while the direct results of these demonstrations may not be large, the mere fact that the hall was filled every day and that the instructions given to the ladies would undoubtedly create a better feeling among the consumers toward the gas companies, and if no goods were sold, the work was good, and that they would rather have fully satisfied consumers than

to have new accounts and have them dissatisfied. When doing demonstration work I would rather have every lady in that room using a gas range than to have them not knowing what I was talking about. I would rather convert the audience to the fact that they could use a gas stove economically than to be talking to ladies who did not have gas stoves and could not put your instructions into execution. I have studied this gas stove demonstration work considerably and believe it is the best way for gas companies to reach the people. The best way to do it is to put it into a single big demonstration. Then every gas stove sold by the Company should be followed up by some competent woman who can go right into the kitchen, telephone the housewife's friends to come along, as Mrs. Jones is going to have her gas stove demonstrated to-morrow afternoon, and she would be glad to have her come in. Give house to-house work in that way. Every gas stove connected should be followed up by some one competent to continue the work started by the demonstrators.

Mr. Schutt—I think Mr. Kaufman has proved that good commonsense, plus hard work, have made the results as shown in his different companies. We are told that service is the final thing in this business. You can hire all your new business managers who can do all sorts of stunts in selling gas, but in the final analyses the gas company has to make good on service. Over the door of the up-to-date business offices we find this sign, "He profits most who serves the best." In selling goods don't be a Mexican citizen. Just state facts in a plain, straightforward manner, remembering that the man who wears a celluloid collar and the woman who paints fool themselves.

The President—We have with us this morning one who last year contributed very largely and splendidly out of the fund of information she possesses, and I think she can probably tell us something that will be of much interest to this discussion of Mr. Kaufman's paper. I will call on Mrs. Hawkins.

Mrs. Hawkins—I don't know that I can add very much to what has already been said, save to narrate my experience along this line. Speaking of demonstration work I agree with several of the gentlemen who preceded me, in saying all demonstration work is beneficial. Now, as to the house-to-house work. Nearly 6 years ago I was employed by the Indianapolis Gas Company up to which time they had had no permanent demonstrator (only a visiting demonstrator at different times) but none permanently employed to make house-to-house visits. I worked on the latter and found many people (perhaps over 85 per cent.) not using the broilers in the gas ranges. Sometimes I would ask, "Do you use your broiler?" and be met with the reply, "My stove has no broiler." Then I would show them what the broiler was. One lady said, "I thought that pan was to put in the upper oven to catch the juices of my pie." That is the knowledge they had of the broiler pan. Making these house-to-house visits we aim to tell consumers how to regulate their ovens for baking pies, cakes, biscuits, muffins, corn bread or roasts, explaining exactly how the oven is to be used. We tell them how to care for their ranges so that the ranges may be more durable, so that they may get the value out of them. We have so many who are careless with them, who perhaps keep them in a summer kitchen or a porch latticed in that they rust out in a few years. We try to teach our people that a gas range if kept in a proper place, with proper care, will last equally as long as any other piece of furniture of equal cost. As Mr. Eves said, to-day nearly all of the people who have gas ranges are using the appliances. We find demonstration work very valuable in our model kitchen. We have since last June been giving demonstrations in the kitchen to the public that can come to the model kitchen. Having several classes in the city where the pupils are either not permitted or are not able to come to the model kitchen, we go to them. The Convent of the Good Shepherd is one of these institutions; St. Vincent's Hospital is another. When they come to us they find demonstration work is very profitable. People are not only delighted with the demonstration work but also with the kitchen. It gives them ideas in that line. In the paper bag cooking line we find the people very much interested. The teachers in the public schools who have been very much interested in the cooking demonstrations on several occasions told us after the demonstrations that they positively could hardly get the children to speak about anything else than the examples they had seen at the Indianapolis Gas Company's office. I agree with Mr. Kaufman as to elaborate demonstrations. We need practical work. Of course, it is best in all demonstrations to give them something a little more elaborate, for there are people who want those things, and if we give them only plain things they say: "She doesn't know very much. She doesn't give us anything we would like to have. We want to know how to make something to use when we are entertaining." Of course, we occasionally give something of that sort; but it is the plain work that counts. [Applause.]

Mr. Danforth—As I am not a new business man, being in the production end of the game, I nevertheless know something has happened. The plant designed for future use, that we thought would be sufficiently large for all time to come, is not going to be large enough I find in Fort Wayne. Instead of operating as long as we are accustomed to, we are operating about twice as long. I hold Mr. Kaufman responsible for it.

Mr. A. C. Blinn—A word as to what Mr. Graf said in regard to a new business department being self-sustaining. Stopping to think, we realize the sale of gas is that for which we are working. If letting that go for profit in the new business we are travelling a pretty narrow line, and I think we should take a broader view. We are not in business for to-day or to-morrow, but for all time. You will find the new business department, unless you watch it, gets to be a dumping ground for every bit of expense you can't put any other place. [Laughter and applause.] If you propose trying to have your appliances show a profit, you are going to that state where you should turn the matter to the dealers. Selling your appliances and showing profit over all that expense are out of the question. If at the end of the year you have made a profit on your appliances, you might better analyze conditions, and you will likely find you have not sold as much gas as you would have done under different conditions. I know we don't expect to show any profit in operating our appliance department.

Mr. Moxon—Connected with Mr. Blinn's remarks as to charging up the new business department of the company as unwarranted expenses, I have been thinking a good deal about the advisability of considering a part of the cost of the promotion of business as an investment. Almost every gas company that is developing a new field has equal reason to consider a large portion of the outlay for the promotion of business as an investment, as it had to consider the laying of mains or services aninvestment. I believe many companies follow the practice of makingthe entire charge of their promotion of business to operating expenses; yet, in reading a decision by the Wisconsin Commission, I find that the Company concerned in three years had expended some $78,000 in promoting its business. Much of that expenditure was for free installations and various other inducements; and it was claimed before the Commission the Company was entitled to call this $78,000 an investment, and to be allowed to earn interest on that; and the Commission held it would be so considered. One of the things, if we have to look forward to being regulated, is that various parts of our expenditures along that line should be considered as investments, and we should be just as much entitled to earn dividends and pay interest on the money that we invest for the promotion and building up of a business as on any other part of our investment. If the companies would consider the apportioning of a certain amount of their expenditures, they are made for the developing of their business, to the investments' account, that we would not have so much of a possibility of showing loss on our new business department. [Applause.]

The President called on Mr. Kaufman to close the discussion.

Mr. Kaufman—This has been a very enjoyable morning for myself, both in respect of hearing so many agree with my paper, and to know that some disagree. I assure you now in this discussion I think you will all come over on Kaufman's side. To begin with, there seemed to be some doubt (the thought came to me last evening) of the figures I placed upon the sales of ranges at the different towns during the demonstration work. To anyone present I will give the privilege of taking this up with our auditor or manager, and believe you will find my figures are really 5 to 10 per cent. lower than the sales that were made in the one week during the demonstration. Not only so, but, in one town particularly, we had gas range sales one week of 30, the next, 32, the third week, 34, and the fourth week we brought it up to 40. Mr. Eves brought in Lafayette. Well, Lafayette isn't the only town in which our corporation operates. He said that if we had a crowd of 200 ladies present, he thought we would find not more than 15 per cent. were using their broilers. My statement in regard to that not only applied to one town, but to all. He claims that out of 2,000 homes visited by his demonstrators, 92 per cent. of the women were using their broilers. I would like to ask Mr. Eves one question to verify Mrs. Hawkins statement. Mrs. Hawkins has been with the Company 6 years. Mr. Eves, how was it at the start?

Mr. Eves—We have in Indianapolis 92 per cent. who are using

their broilers and we have verified this, by going to 2,000 cases in order to get those tests.

Mr. Kaufman—Mrs. Hawkins says tha t when she first went to the Company she visited the homes—I am doing the same practical work in the small towns—and she found many people who did not know what the broiler was. If Mr. Eves had gone back 6 years ago, he would have verified my statement that 85 per cent. of the people wouldn't know to-day wh at the broiler was unless very explicitly explained to them. As to paper bag cookery. It is said it should be brought into demonstration work. At Fort Wayne I really think I had the honor of bringing out in this State, in a public way, the first person that ever cooked in paper bags before the public. In a demonstration at Fort Wayne I asked the demonstratress we had there (she is a teacher of domestic science) if she would not show the paper bags brought to our office. She said she didn't know anything about it. We had prepared a 5-pound leg of mutton, stuffed. I prepared it put it in the bag and roasted it, and the people were highly elated about it, for it came out very fine. We carried it on during December in our Lafayette office. Paper bag cookery is very interesting for those who care to use it, but it will never become as popular as the gas oven in the gas range. I was surprised to hear Mr. Ridenour's remarks. Profit upon an appliance is one of the last things to consider, or to let a customer consider. Gentlemen, do I look like a man who is going to give an article away upon the floor. Profit is, of course, something to consider, but of all things let the person who is buying an article think you are selling her service; that is all. In Peru they worked for years and have changed the lines from natural to artificial gas, and I say it is a positively wrong idea to let appliance profit enter into a commercial organization. We are dealing in service pure and simple. We are selling service. And it is the only thing that we are selling, although our auditor said to me last December, "Kaufman; the commercial department in Lafayette showed an absolute net profit." I was greatly surprised. I don't know what the sales are, and I don't know whether or not the Peru office is absolutely different from any other office. The commercial department seems the dumping ground for expense connected with all corporations, and it would be telling things to tell you what profit we make upon articles. But I assure you of this. Three or 4 years ago I was selling a certain article, which they wanted me to sell at a very low price. I said the people would pay more, and I was told I was close to paresis for boosting the price. However, instead of selling the article at $36 we sold it at $49.50. Had we sold it at $36 the people would have been scared to death at it; thought it was no good. It wasn't much good, anyway. The thing I wish to impress upon you is: When selling an article, no difference the profit thereon, tell them you are selling service, nothing else. It has been service in our office first and last, and it is a thing we are impressing on the people every day. In our office at Lafayette I had the figures at $4,200. Let me correct that; it was $4,500. Mr. Baker, our local Manager, is here, and anyone may ask him publicly or privately if we gave things away. I don't believe in making 100 or 200 per cent.; if you can make 300, why, make it. Mr. McLeod asked me to state what our demonstrations cost. About $1 a day. All we pay for demonstration work is for the service of a maid to keep the dishes clean. Most of the time I was cook. Of course, gentlemen of the business departments, it does not take nerve to do things, rather it is ginger injected into your own department. It doesn't take nerve to show a lady how to bake or broil, and if you men would just talk to your wives or sweethearts, getting them to give you a few pointers on cookery, you would become so enthusiastic before an audience that you get real nerve; not nervous! It is nothing other than enthusiasm. In one little town (for Mr. McLeod's benefit) we were doing some broiling and baking at the same time, and we baked biscuits in 7 and 10 minutes. A lady arose in the audience and said, "Mr. Kaufman, it is impossible for me to bake biscuits in the time you do." I said, "Madam, what biscuit receipt are you using?" Well, we prepared those biscuits and served them. We want the complaints. We bake for them and show them how to use the appliances. We showed this lady how to use her range. She came back and said it took 20 min utes to bake her biscuit. We left the office at 11:30, went to her house, adjusted her oven, and she had a pan of delicious biscuits for dinner. Go after those things. Dig into and check up every little complaint, and make house-to-house demonstrations. We do so, and are instructed to keep down the cost. Another thing Mr. McLeod brought up, as to having the people do the demonstrating; that is, cook the stuff. We always invite any lady who doesn't know how to broil to please come forward and do the broiling herself. I can't say anything at all about Mrs. Hawkins, but I am very glad to have her coincide with me in my paper. In preparing little dishes for entertainments. I don't agree with professional demonstrators. We had one at Fort Wayne who was carrying on a demonstration (it was about 12 o'clock) and I had sold a lady a very fine cabinet range. The purchaser stepped to the demonstrator, asked her something about it, and this was the reply: "Please don't bother me now. It is my rest hour." I won't tell you what I felt like saying to the demonstrator, but I did tell her that she had no rest hour while she was in that hall. She became very indignant, but nevertheless replied to the lady. In Mr. Block's store in Indianapolis a demonstration was carried on. The demonstrator talked to the ladies, and all the time she was talking she was selling a little cook book for 25 cents. She always had her hand out to boost some little food stuff. We, of course, are not paying to boost anything except gas ranges to sell gas. If a demonstrator goes to a hall where an elaborate demonstration is to take place, you can put it down as the one best bet that the majority of women who go to this hall to hear this demonstration can readily afford to pay 50 cents or $1 for the cook book the demonstrator has to sell. The woman at Mr. Block's claimed before her audience that she was the originator of the cabinet stove. Every demonstrator claims that she designed this particular stove. When she got ready to begin she called, "Boy! Boy! Come here and show me how to light this oven." That happened in your own city, gentlemen. If I had been that boy I would have told her where to get off. I can never agree with professional demonstrators. Again, commercialism is not always selling. I think there is some commercialism in demonstration work. Gentlemen, I don't care what article you are demonstrating, remember it is not the food stuff that you are demonstrating, but it is the appliance in which you put the food stuff. Getting away from the food stuff you get into commercialism. Whether you put it up for sale or not, it is commercialism pure and simple. It is the sale of the appliance that you are working for. Here a certain demonstrator has sent out papers all over the country—$60 for 6,000; and I would like to ask Mrs. Hawkins what she thinks of some things in this paper. One woman advocates broiling with door open; but you can't broil with the door open and bake in the oven at the same time. You ruin your gas range if you broil with the door open. The slight bits of grease splutter out, and aways goes the enamel body; or, if you have a steel body, the stuff will rust it.

Mrs. Hawkins—With some of the old stoves, where no air is admitted into the broiler, I would keep a ½ inch block in the broiler door; but that didn't interfere with the baking. Since we have the openings in the door I close the latter. I prefer having the broiler door shut.

Mr. Kaufman—I have had exactly the same experience. That is absolutely practical work. I had quite a chat with a well-known demonstratress, who didn't agree with me then on commercialism in demonstrating; but does now, in that she is demonstrating something in the interests of commercialism, that something being cottolene. They are all coming to it absolutely. Despite the hot weather of last July people came to the office, packing the aisle and blocking the sidewalks to get into our demonstrations. As to "How to keep a stove from rusting?" I sell "No Rust." I would be in favor of a preparation called "No Rust." It is on the market. I don't want to get any free advertizing. It is a preparation applied to the stove that will remove the rust from the body and inside. It retails at 10 cents a bottle. Should any of you want that, we will gladly receive your orders at Lafayette. This is a personal affair, pure and simple. I wish to thank you, gentlemen, for the kind interest you have taken in my paper, and the discussion has been agreeable to myself. I am sorry I cannot go into it further. I thank you.

Mr. Graf—On behalf of the Company I represent I want to plead "not guilty" to the Block store incident just mentioned.

The President—Gentlemen, we have had a very interesting paper and a very interesting discussion. I think it was the National Commercial Association that first established the innovation of having a woman take part in the Association meetings, and it seems to me as though we overlooked something for a long time of great value to us. The discussion on this paper has brought out the fact—we all knew it, but hadn't given it much thought, perhaps—that the women are the people we are interested in. [Laughter.] I knew you would take that interpretation of it, but Mrs. Mulholland happens to be in the room, and so it is all right. But the sales we make and the results of our work depend on the women, and they are the ones in whom we should be interested. In this connection I would say that the

"General Federation of Women's Clubs" of this country, numbering about 900,000, are working along the lines of the economies and conveniences and all those things that make life more worth living. We have with us this morning the Chairman of the Home Economics Committee of this General Federation of Women's Clubs. I take pleasure in introducing Mrs. O. N. Guldlin, of Fort Wayne. [Great applause.]

Mrs. Guldlin—I hope this organization is thoroughly established and ready to go on for some years. Years ago, if some of you will remember, I was invited to give a toast at Milwaukee. At that time the ladies were all invited to the banquet, and I took great pains to get ready. I think I spent about three weeks—my husband was in California—in the effort to have the most perfect and effective toast I could prepare. I was also careful to have the best gown I could possibly get for the occasion. We were only invited once after that. Then they ceased having women. Later, I was invited to take part in Cleveland at the meeting of the Western Association. My reward was this splendid pin; but, as you know, the swan song of the organization was sung that year. There was the end of it. You are taking great chances to have me here. When Mr. Mulholland asked me to come I hated to do it, knowing my past record in this line, but when I remembered that I had to have an education along this line, and that I had gained a great deal by going over the country to gas conventions, and that I was really a child of the gas fraternity—I think that sounds better than to say "old lady"—I felt that I owed it to you to do anything I could. So if you need any work from me do not hesitate to ask it. I am very grateful to you.

(To be Continued.)

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 20 cents.

1,016,290. Gas Purifier. R. Robinson, Pittsburgh, Pa.

1,016,391. Protector for Incandescent Mantles. M. Bendix, Cologne, Germany.

1,016,476. Purification of Gases. F. G. Cottrell, Berkeley, Cal., assignor to International Precipitation Company, San Francisco, Cal.

1,016,869. Fuel Gas Burner. J. C. Beckfield, Pittsburgh, Pa.

1,016,872. Lock for Gas Cocks. J. J. Comer, New York City.

1,017,025. Gas Producer Mechanism. F. H. Treat, Cleveland, O.

1,017,468. Safety Appliance for Gas Fixtures. P. R. Richards, Hazelton, Pa.

1,017,489. Gas Furnace. J. A. Abrams, Wadsworth, O.

1,017,495. Gas Generator. R. Bellamy, Moores Hill, Ind.

Items of Interest
FROM VARIOUS LOCALITIES.

WITH much regret we report the sudden death of Mr. A. E. Harling, Industrial Gas Expert for the firm of Hodenpyl, Hardy & Co., of Detroit. Deceased lost his life through an explosion while making some experiments with an oxygen generator in an attempt to generate oxygen for use in a blowpipe. Deceased was well known to the fraternity, and his work took him to many cities and towns in the Middle West. He had a very ingenious mind that constantly spurred him on to the making of many experiments, often of a dangerous nature; and perhaps the studies which held his thought most were those related to devising new means for the spreading of the use of gas for industrial purposes. In fact, it was in carrying on one of these, in an industrial plant, in Pontiac, Mich., that he lost his life. He had a residence in Detroit, and also maintained an office on 27 Grand River avenue East, in that city. He was a member of the Michigan Gas Association, and was also on the rolls of the National Commercial Gas Association. His untimely taking away will bring deep sorrow to his many friends, and deprives the fraternity of a man whose early career gave great promise of valuable expansioa.

MR. SIDNEY MASON, President of the Welsbach Company, of Philadelphia, Pa., informs us that the Welsbach Company, of Philadelphia, and the Bryant Electric Company, of Bradford, Pa., have joined in a suit, in the United States District Court, Cincinnati, O., for the infringement of patents to Wm. and Henry Anderson, No. 905,128, and Joseph E. Morton, re-issue No. 13,324. These two patents cover a spring-clasp, shade holder, which is now widely used on the Welsbach inverted incandescent lamp, and for which the Welsbach Company is the exclusive licensee under the Anderson and Martin patents. The suit against the Standard Stamping Company is brought to prevent further infringement of these patents, and the court is asked to grant an injunction and accounting for past infringements.

MR. A. S. B. LITTLE, General Manager of the Consolidated Gas Purification and Chemical Company, Nashville, Tenn., writing under date of the 17th inst., says: The following "items" are of great interest to us and show just what good advertising will do in "various localities." Our shipments of oxide this year were to the following places, many of them being repeat orders: Glens Falls, Granville and Malone, N. Y.; Bridgeton and Newton, N. J.; Amesbury, Mass.; Easton and Havre de Grace, Md.; Hopkinsville and Owensboro, Ky.; Citizens Gas Company, Indianapolis, Ind.; Knoxville, Tenn.; Manitowoc and Sheboygan, Wis.; Northumberland, Pa.; Austin, Minn.; Port Huron, Mich.; Pensacola, Fla.; Laclede Gas Light Company and St. Louis County Gas Company, St. Louis, Mo.; Wallingford, Conn.; Montgomery, Ala.; and Fairbury, Nev.

JUST prior to January 1st those shipments were made: Birmingham, Ala.; Detroit and Delray, Mich.; Philadelphia and Bloomsburg, Pa.; Selma and Eufaula, Ala.; Citizens Gas Company, Indianapolis, Ind.; Suffolk and Bluefield, Va.; Centralia, Ills.; Bridgeport, Conn.: St. Louis, Mo.; Blair, Neb.; Rome, Ga; Clarksville, Tenn.; Norwood, Mass.; Detroit, Mich.

MR. ROBERT B. CLARK, since 1909 Superintendent of the Woonsocket (R. I.) Gas Company, has been appointed Superintendent of the Stone & Webster gas property in Paducah, Ky. His successor is Mr. Chester F. Stevens, who since 1910 has acted as Superintendent of Construction on the Woonsocket plant.

MR. JAMES T. MORAN, General Manager of the Southern New England Telephone Company, has been elected to the Board of Directors of the New Haven (Conn.) Gas Light Company, filling the vacancy occasioned by the death of Prof. George J. Brush.

THE following letter is self-explanatory:

NEW YORK, N. Y., Feb. 16, 1912.

To the Editors, AMERICAN GAS LIGHT JOURNAL: My attention has been called to a communication in your issue of February 5th, from Mr. James E. Stacey, President of the Stacey Manufacturing Company, in which Mr. Stacey takes exception to a statement in my article entitled "Gas Holder Foundations in Soft Soils," which appeared in your issue of January 29th. Mr. Stacey has evidently been led into error by a hasty reading of this article. If he will look at it more carefully he will find:

First.—That the statement which I made was a quotation from a well known authority on gas engineering (M. Nisbet Latta, author of "American Gas Engineering Practice"), the correctness of which can very easily be verified.

Second.—The quotation referred to does not in any way either say or imply that Mr. Stacey's Company had anything to do with the gasholder foundation on wooden piles which failed.

Trusting that this statement of the case will clear up the question at issue, I remain, Yours very truly,

MACARTHUR PILE AND FOUNDATION CO.,
By HUNLEY ABBOTT, Vice-Pres. and Chief Engr.

THE annual meeting of the shareholders of the New Haven (Conn.) Gas Light Company was held pursuant to notice, and it was remarkable for the large number of shareholdings personally represented. President Nettleton's annual report of the Company's transactions was complete and detailed. Especially referring to the plant improvements made during the year, he called attention to the completion of the Company's mammoth holder (it is up to retaining 3,000,000 cubic feet) on East street near Chapel. He also reported the construction of a new house on the Company's premises, which was erected

and equipped for the better convenience of the works' employees. The building is furnished with shower baths, individual lockers, a room where luncheon may be eaten, etc. Work has been commenced upon a new purifying plant to be completed in a year. During the year extensions (high pressure type) of the main system were made through Fair Haven to the Light House, to East Haven, to Westville and to West Haven. The construction of the high pressure main to East Haven and the Light House involved the difficult engineering feat of sinking mains in the beds of the Mill and Quinnipiac rivers. Under the plan of profit sharing with the employees, there is now held by the employees of the Company 991 shares of the stock, which plan became effective 5 years ago. The Company also has a savings fund for its employees, which was inaugurated last spring. Under the operation of this plan the Company has since then distributed $3,645 in stock to those employees who share in the savings plan. There was no suggestion of an increase in the dividend, and the capital stock ($4,500,000) can successfully be rated as a returner of 8 per cent. per annum for many years to come. The vacancy on the Board was filled by the election of Mr. John T. Moran, and the Directors subsequently perfected the following executive organization: President, Chas. H. Nettleton; Vice-President, George D. Watrous; Secretary and Treasurer, J. Arnold Norcross; Superintendent and Engineer, Robert E. Wyant.

MR. THOS. W. HANLEY, Chief of the bookkeeping division of the Chicago forces of Messrs. H. M. Byllesby & Co., died the 8th inst., after an illness that lasted but a week. Mr. Hanley had been with the Byllesby organization about two years, and his advance with the firm had been rapid, and of whose forces he was a valued member. Mr. Hanley was born in Chicago, November 7th, 1877, and lived there all his life. He was a member of the Knights of Columbus, and his personality brought him many friends. In 1901 he was united in marriage to Miss Anna Mellen, of Peshtigo, Wis., who survives him, as do two sons. The funeral services were held in the church of Our Lady of Good Counsel, the morning of the 12th inst., and there was a large attendance, the mourners including many officers and employees of the Byllesby corporation.

HUGH HILL, writing to us from Anderson, Ind., under date of the 16th inst., says that he is interested in the recently formed Hill-Kenton Company, which proposes to manufacture and market gas regulators of all capacities and for all pressures. Mr. C. P. Kenton, of the new firm, has for a score or more of years been interested practically in this line of manufacture.

"B. B. M.," writing from Los Angeles, Cal., under date of the 15th inst., says: "Some days ago Mrs. C. W. Dobbins, a resident of Pasadena, deeded to Prof. T. S. C. Lowe, in 1899, the property in Los Angeles known as the St. John's street gas works' site, receiving therefor bonds of the Los Angeles Suburban Gas Company, the face value of which was $50,000. Her suit was for principal and interest, which figured out at $61,250. The case has been in the courts since 1906, the initial suit having been brought by W. G. Gallagher, acting for a number of bondholders. The Lowes contended that the bonds were invalid, because they had been issued in violation of the by-laws provision, declaring that in order to issue bonds it was necessary to have a complete Board of Directors in attendance at the sessions at which such securities were authorized; and that when the Dobbins' bonds were authorized no such attendance was registered. Think of that for a plea! However, the Judge decided that the Dobbins' bonds (having been issued for a set consideration) were valid, but that the others of the general issue (amounting to $250,000) were invalid.

MR. ARTHUR W. BALLARD, President of the Pacific Gas and Electric Company, of Phœnix. Ariz, and for many years Pacific Coast representative of the General Electric Company, with headquarters in Los Angeles, Cal., died suddenly the evening of Friday, the 9th inst. Deceased was born in London, England, April 20, 1863. He settled in America in 1888, and went to California in 1890, with full power to represent the General Electric Company on the Pacific Coast. This he did with discretion and success. A comparatively short while ago (having completed a 20-year period with the General Electric) he retired from its service, and shortly afterwards assumed direction of the entire enterprise at Phœnix, of which concern his father and rother were virtually the owners. He was prominent in the club life of Los Angeles. He is survived by his widow, and daughter; his father, two brothers and three sisters also mourn for him. It might be worth mentioning that one brother (B. H. Ballard, Secretary and Assistant General Manager, the Southern California Edison Company) is prominent in the affairs of the Pacific Coast Gas Association.

THE Municipal Board, of Roseville, Cal., has instructed its Clerk to direct the City Engineer to prepare plans and specifications under which a plant for the manufacture and distribution of gas on municipal account is to be maintained.

REPLYING to Mr. R. T. Beson. we note that the executive management of the Washington (D. C.) Gas Light Company is thus constituted: President, Joseph Leiter; Vice-President (new officer), Howard Reeside; Secretary, Sanford N. Whitwell; Second Assistant Secretary, George N. Whitwell; Treasurer, Lawrence Townsend; Assistant Treasurer, Rawlins Hume—there does not seem to be as many members of the Townsend family as is the case with the Whitwell division.

MR. HENRY GUTHARD has resigned from the Detroit City (Mich.) Gas Commission. He explains his action by remarking that there has not been a meeting of "the body" since he was appointed thereto last summer; further, no compensation of any nature goes with the job. Even the satisfaction of seeing his name in print has been denied to Mr. Guthard and his colleagues.

THE New Jersey Public Utility Commission has consented to the plan under which it is proposed to consolidate the properties of the Lambertville (N. J.) and the Flemington (N. J.) Gas Light Companies. The conbination is to work under the title of the Northern Gas Company, of New Jersey, and it may stand an issue of $215,000 in bonds and of $75,000 in shares.

THE Boston Consolidated Gas Company has agreed to put in effect an 8-hour work day schedule, the same to date from July 1st. It affects the engineering, gasmaking and firing and oiling divisions.

THE annual meeting of the Salem (Mass.) Gas Light Company was held recently with the following result: Directors, H. A. Hale, C. F. Prichard, A. W. Rogers, J. H. Smith and S. W. Winslow; Treasurer, B. W. Sluman.

FROM the annual reports of the Georgetown (D. C.) Gas Light Company it is learned that the output for 1911 was 119,861,820, and that it was sold at an average price of 91½ cents per 1,000 cubic feet.

THE American Gas Company, of Philadelphia, having sometime ago secured control of the Citizens Gas and Electric Company, of Waterloo, Ia., has purchased the Lane estate on Sycamore street, and will erect thereon an office building that will equal any other business housing in beautiful Waterloo.

A PRESS despatch from Ithaca, N. Y., dated the 19th inst., declares that the entire electric power of Ithaca was cut off the night before, and it was not until late of the day after that the mystery was cleared up. The defective service was caused by the industry of a rat, the attention of which was for a time centered on the insulation of a feed wire. The rodent having bared the line, a short circuit resulted, and the supply of current on domestic and trolley railroad account was at an end. The news is further conveyed that "The rat was killed."

AT a meeting of the Avondale (a suburb of Cincinnati, O.) Improvement Association it was unanimously decided to continue the illumination of the side streets by means of mantle lamps and gas. This, too, after a comparative example of tungsten lamp (electric) and mantle burners for gas use was carried on for a month or more.

THE Public Service Commission (Second New York District) has dismissed the complaint of the authorities of Schenectady respecting the gas rate charged in that city. The Commission declares that the rates established there (scaling schedule, maximum $1, minimum 75 cents) must be regarded as reasonable.

The Market for Gas Securities.

The dullness and strength characterized the market for gas shares the past week, and although the actual transfers were not many, the net result in Consolidated was, to all intent, a gain of 1 per cent. It came in this morning (Friday) at 139 to 139¼. The gain in the bid in Brooklyn Union was only ¼ point, although the usual dividend for the quarter (1¼ per cent) was declared. It was thought in many quarters that perhaps a further instalment on delayed back dividend account would be paid, hence the loss of about ¼ point in the bid.

Out-of-town shares are in fairly good demand, and all bond issues are taken up whenever such appear. Messrs. Henry L. Doherty & Co., 60 Wall street, are announcing in our advertising columns an issue of subscription stock in the Ozark Company, controlling the Ozark Power and Water Company, of Missouri, and in the Electric Bond Deposit Company, of Delaware. The Doherty corporation will furnish on demand a pamphlet descriptive of the properties, terms of subscription, etc. The American Gas Company has declared its regular quarterly dividend of 1¼ per cent.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

FEBRUARY 26.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	139	139⅛
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	8,000,000	1,000	103	105
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	3,500,000	100	165	175
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	101	102½
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	35	50
1st Mtg Gold Bds. 5 p. ct.	1,000,000	—	98¼	100⅛
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	96	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	100	102
Standard	5,000,000	100	60	70
Preferred	5,000,000	100	90	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	138½	140
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	½	¾
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	50	60
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,660,000	1,000	104	105¼
Cincinnati Gas and Electric				
Co.	20,500,000	100	87	90
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084		—	—
Mortgages, 5's	3,400,000		—	—
General Mortgage 4½	10,661,0 0		—	—
Con. Gas Co., Baltimore				
City, 4½	2,751,000		—	—
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	974,000	1,000	94	96
Bonds	75,000	—	—	100
Detroit City Gas Co.	6,580,000	—	—	50
Detroit Gas Co., 5's	881,000	1,000	75	80
" Prior Lien 5's	5,619,000	1,000	97	100⅛
Equitable Gas & Fuel Co.,				
Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	128	136
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	130	138
" Bonds, 5's	10,500,000	—	101	106
Indianapolis	2,000,000	—	—	38
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	200,000	1,000	91	95
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	99	102
Laclede Gas Co., St. Louis.	10,000,000	100	106½	107
Preferred	2,500,000	100	114	120
Bonds	10,000,000	1,000	102¾	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	108	108¾
Massachusetts Gas Companies, of Boston	25,000,000	100	91	91⅜
Preferred	25,000,000	100	98	98½
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	105⅜	106
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
Pacific Gas and Electric Co.	15,500,000	—	5 ⅜	55
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	106
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
Washington (D. C.) Gas Co.	1,600,000	200	420	425
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October 16 to 18, 1912. Atlantic City, N. J. Officers: President, Ira C. Copley, Aurora, Ills. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting, ———— Officers President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keilior, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 1912. Officers: President, R. M. Searle, Rochester, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Guild of Gas Managers of New England.—Annual meeting, March, 1912. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, time, March 20 and 21, 1912, Auditorium Hotel, Chicago, Ills. Officers: President, C. B. Strohn, Elgin, Ills.; Secretary-Treasurer, F. E. Newberry, Dixon, Ills.

Illuminating Engineering Society.—Annual meeting, Sept. ————1912, ———— Meetings of Sections, monthly. Pres't, A. E. Kennelly, Boston, Mass.; Secretary, Preston S. Millar, 29 W. 39th street, N. Y. City. Sections: New York, Secretary, Albert J. Marshall, 16 East 40th street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets, Chicago, Secretary, A. L. Eustice, 105 North Wabash avenue.

Indiana Gas Association.—Annual meeting, March, 1913, Indianapolis. Officers: President, Howard L. Olds, Indianapolis; Vice-President, Wm. Wallace, Lafayette; Secretary-Treasurer, Phimer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, time, May, 22, 23 and 24, 1912; Lincoln, Neb. Officers: President, G. W. Clabaugh, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, Sept. 1912. Manhattan, Kas. Officers: President, B. F. Eyer, Manhattan, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, Sept. ————1912;———— Officers: President, F. W. Blowers, Kalamazoo, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1912; St. Louis, Mo. Officers: President, F. E. Murray, Louisiana, Mo.; Secretary and Treasurer, N. J. Cunningham, Springfield, Mo.

National Commercial Gas Association.—Annual meeting, December, 1912. Atlanta, Ga. Officers: President, C. L. Holman, St. Louis, Mo.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May, 1912, Kansas City, Mo.; Officers: President, A. B. Macbeth, Independence, Kas, Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, ————1913. Boston. Officers: President, D. D Barnum, Worcester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn, Belmar, N. J.

Ohio Gas Association.—Annual meeting, February ———, 1913, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary-Treasurer, T. C. Jones, Delaware, O.

Oklahoma Gas, Electric and Railway Association.—President, Noel R. Gascho, Alva Okla.; Secretary, H. V. Bozell, Norman, Okla.

Pacific Coast Gas Association.—Annual meeting, Sept. ————1912, ———— Officers: President, W. Baurhyte, Los Angeles, Cal.; Vice President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, John A. Britton, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, Williamsport, Pa., April 10-12, 1912. Officers, President, W. R. Rhodes, Williamsport, Pa; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting, Dec., 13, 1912; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, April 17-19, 1912, Jacksonville, Fla. Officers: President, H. B. Hoyt, Jacksonville, Fla.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting, April 25, 26, 27, 1912, San Antonio, Tex. Officers: President, J. E. Carroll, Beaumont, Tex.; Secretary, D. G. Fisher, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 15 and 16, 1912, Milwaukee, Wis. Officers: President, H. M. Buck, Waukesha, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.